

Railway Age

WITH WHICH IS INCORPORATED THE RAILWAY REVIEW

FIRST HALF OF 1927—No. 10

NEW YORK—MARCH 5, 1927—CHICAGO

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Railway Age

Vol. 82

March 5, 1927

No. 10

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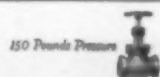
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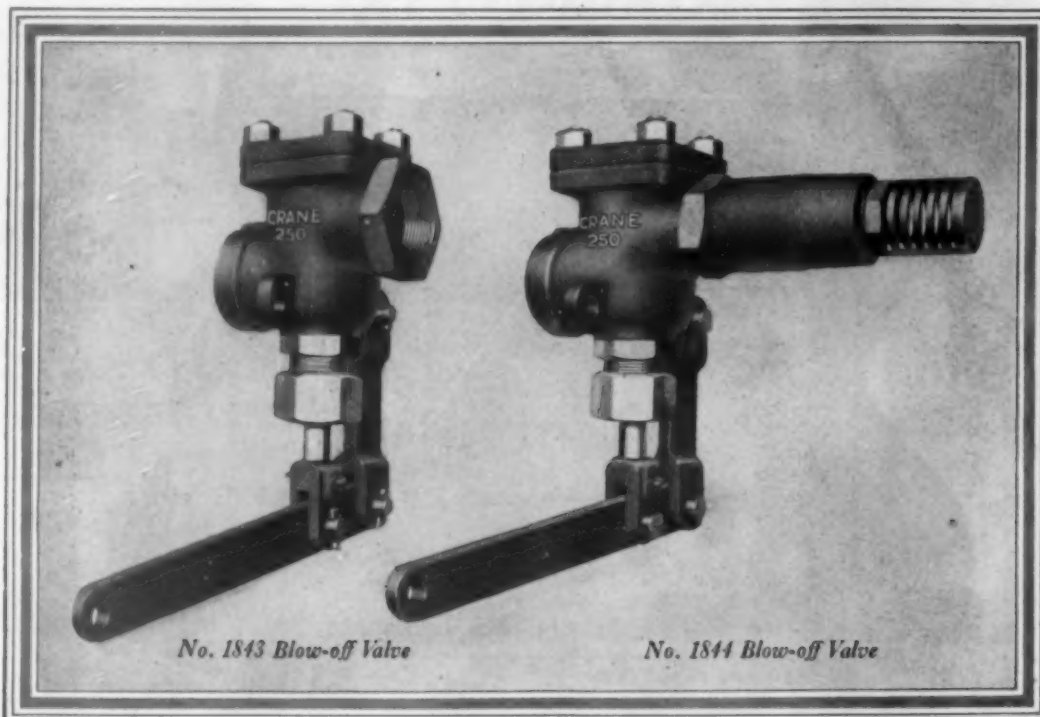
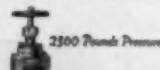
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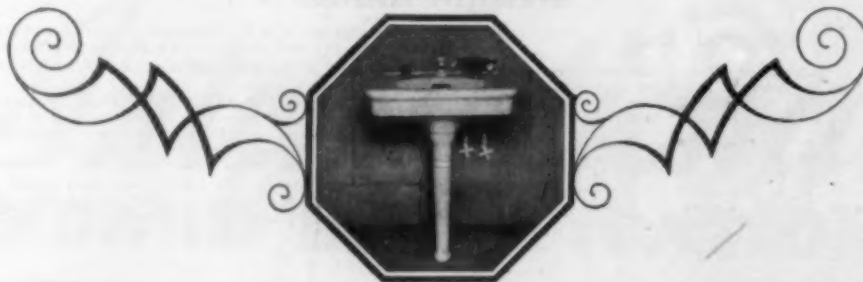
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Railway Age

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March 5, 1927

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More Bus Tour Services Next Summer

HE popularity of railway-operated motor bus tours, particularly in the West, continues to grow. More of these will be offered to sight-seers next summer than ever before, and the novelty of the idea of getting off the beaten path and visiting the little known places via motor bus should insure their success. Many bus tours in the national parks have been operated for years and their patronage has always been heavy. To these have been added more recently the Santa Fe "Indian Detour," a motor bus trip through the most interesting part of New Mexico; the Union Pacific Zion National Park and Death Valley bus tours in Utah and California; that of the St. Paul which takes its passengers to and from Yellowstone National Park, and others. This year the Union Pacific will establish a tourists' lodge on the north rim of the Grand Canyon and will extend its Utah bus tours to that point. The St. Paul, according to reports, will establish a bus tour from its main line to Glacier National Park. Other similar projects are being considered. There seems to be little doubt of the success of these enterprises. They offer a service that is new, and sightseeing travelers are always on the lookout for novelty.

One Instance of Valuation Progress

ALTHOUGH the Supreme Court has caused some disappointment by its decision that the Interstate Commerce Commission's valuations of railroad properties are not subject to injunction until they are actually and directly used in a tangible way, and therefore has declined to review the commission's valuation methods, it is possible to point to one example of progress on the valuation question. Senator-Elect Smith Wildman Brookhart, who a few years ago was fond of telling the world that the value of the railroads of the United States was only about \$12,000,000,000, has written a Sunday newspaper article referring to the value of the roads as about \$22,000,000,000. It is true that he was discussing railroad valuation only incidentally, comparing the return earned by the railroads with the return on some estimate of farm value, and apparently he adopted the figure recently given by Commissioner Lewis of the Interstate Commerce Commission in his testimony before the House appropriations committee as that which the commission's work would probably sum up to on the basis of the methods heretofore used. Mr. Brookhart had based his former statements on a rough estimate of the total market value of railroad securities at a time when their prices were very low, although no one even then had a very accurate idea of what the total market value would be. He even introduced a bill in the Senate to direct the commission to value the railroads on the basis of market prices of the securities. The bill, of course, was promptly forgotten and we have

not heard recently of any suggestion that it be revived under present conditions, but some progress has been made if Brookhart has advanced so far as to accept even an I. C. C. figure as a basis for argument. Incidentally no one seems to have expressed any surprise that the Supreme Court did not do something to reduce the I. C. C. valuation basis.

Budgeting Transportation Expenses

FOR years, it was the fallacious idea that transportation expenses could not be budgeted. The principal reason given in support of this idea was that, while a maintenance of way or maintenance of equipment program, with its attendant budget, could be decided upon and adhered to closely, no fixed transportation budget could be made because of fluctuations in traffic. Of course, in the very nature of things, the ups and downs of traffic have an immediate effect on transportation expenses, but there is no reason why the volume of traffic may not be estimated in advance and the transportation budget fixed accordingly. To make such an estimate is not a particularly easy or simple matter, but the cost control that is made possible by an accurate transportation budget is well worth the effort and expense necessary to make the traffic estimate. The Illinois Central has been budgeting its transportation expenses for 15 years, as described elsewhere in this issue. The results have been such as to warrant a continuation of the system. It has been found that the superintendents are able to control transportation costs on their divisions when they know what those costs are from month to month. Through experience, their estimates are becoming more and more exact and each item of transportation expense is watched more and more carefully. What were prior to budgeting mere meaningless collections of figures have now become fraught with meaning and direct application to their own divisions.

Roller Bearing Mileage

ONE of the most important questions in the minds of railroad men regarding roller bearings relates to the service life which may be expected of them when applied to heavy railroad equipment. While present experience is entirely too limited to serve as the basis for definite final conclusions, there are many indications that a greatly increased mileage over plain bearings will be obtained with a minimum of maintenance difficulty and repair cost. To mention only one case, a 12-wheel roller bearing-equipped coach on the Chicago, Milwaukee & St. Paul has made a total of 300,000 miles to date, in through train service between Chicago and the Pacific coast. This car makes a round trip of approximately 4,400 miles every nine days, or about 14,700 miles a month, not having been in the shop for heavy repairs

since the application of the roller bearings. A recent check showed no perceptible wear of the bearings which it is conservatively estimated will make at least double their present mileage and probably more. One reason for the recent action of a number of roads in specifying roller bearings on extensive orders for new car equipment is to enable these roads to determine for themselves by service tests over a period of years whether the admitted advantages of roller bearings can be obtained without maintenance difficulty and expense to offset the savings.

Making Station Signs Legible

FROM letters we have received, it would seem that there exists an active desire on the part of some of the traveling public for more easily legible station signs. One correspondent suggests that in many places existing signs are satisfactory by day and would serve the purpose well enough at night if platform lights were so placed as to make them visible. He tells of stations on one line with adequate signs, which, however, are illegible after dark for the reason that lights are placed behind them instead of in front. He adds that in a Pullman sleeper at night he has often awakened with a curiosity to learn his whereabouts, but the only signs with lights placed for easy legibility were those reading "Western Union" or "American Railway Express," which naturally were not particularly helpful to him. The whole question is, of course, not one of prime importance when compared with some which the railroads have to meet. Nevertheless it is a detail some thought and attention to which might pay rather well in the public good will that it would be sure to gain.

Organized Electrical Work

IN a recent issue of the *Railway Age*, the statement was made that the Baltimore & Ohio has in five years doubled its use of electrical power and that the Burlington is now using six times as much as it did twelve years ago. These two cases are probably exceptional, but they indicate the necessity of giving special attention to the organization of this work. Electrical organizations have grown like "Topsy." Each railroad department—operating, engineering and mechanical—has in increasing proportions required the service of electrically operated machinery or electric light. In some instances electrical forces are maintained for each department. In most cases the mechanical department has required the largest electrical organization and has been called upon to supply other departments with their electrical needs. The electrical engineer of the Burlington was recently given general supervision of construction, installation and maintenance of electrical equipment in the mechanical department and supervision of both inspection and maintenance of electrical equipment in the operating departments other than signal and telegraph. Instead of reporting to the engineer of buildings as heretofore, the electrical engineer now reports to the vice-president in charge of operation. This arrangement should assist greatly in co-ordinating electrical activities, minimize duplication of forces, and control types of installations so as to make more apparatus interchangeable. Such an arrangement may not be possible or suitable on all railroads, but where it is applicable, as on the Burlington, it would seem to possess marked advantages.

Luminous Number Plates for Sleeping Car Berths

LATE at night, two passengers recently boarded a sleeping car at an intermediate station. As the porter was busy with other duties, both attempted, in the dark, to locate their berths. Neither was successful until the Pullman conductor switched on the lights. On another occasion one of these passengers gave his bag to the porter who, in the darkened car, placed it in the wrong berth. It is not unusual to hear of amusing, and at times embarrassing, incidents of berth occupants who, having occasion to leave their berths during the night, in the darkness attempt to enter the wrong berth. Another minor, but irritating inconvenience to occupants of sleeping car berths is the effort expended in locating the berth light switch. As the light switch and one of the hammock hooks are close to each other, it is not unusual for the passenger to fumble around in the dark for the light switch and fruitlessly tug at the hammock hook in an effort to turn on the light. A simple, yet effective, way of eliminating the first of these inconveniences to the traveling public is being provided by placing on the curtains of each section in many Pullman cars a form of luminous number plate. As for the second inconvenience, no move seems to have been taken in the United States to use luminous light switches to facilitate their location. Some, if not all, of the cars in Canada, however, have been provided with luminous light switches.

A Renewed Appreciation of Railroad Romance

THIS seems to be a period of interest in whatever romance there may be in railroading. A New York newspaper has lately expressed an appreciation of the fact that locomotives have personalities, and has stimulated argument among its readers as to what names would best express the individual characteristics of different locomotives. Some have leaned toward exalted titles, and others toward a rugged commonness of nomenclature, such as "Big Bill" and "Husky Gus." It is fair to suppose that someone will next propose naming locomotives after Greek Gods and someone else will retort that the names of Indian chieftains would be more appropriate. All of this, to the casual reader, may have in it a sound of facetiousness, but underneath the discussion there runs a current of real interest in railroading, an interest from the modern point of view—one that can see beauty in etchings of huge industrial plants, and in the paintings of a Bessemer furnace at full blast. In this and other interests which are growing, there may be the beginning of a romantic understanding of railroading that has not been at its high point since the old days of railroad building and the time of the rate wars. The interest in railroad stocks during the last few weeks and the discussion of combinations of systems which are carried in the daily press have doubtless made the public aware that railroads are not altogether dull and prosaic. Once the public was willing to believe they were anything but that. If later it lost comprehension of railroad romance, it might have been because transportation was busy becoming a very complex field of endeavor not wholly clear to the layman. And now, if the public begins to take a greater interest in what might seem to be railroad matters of lesser importance, may it not be a renaissance of romantic interest that will grow and be-

come clarified in its understanding as the public's comprehension of modern transportation increases? It is certainly an awakening of interest from which the railroads can scarcely fail to profit.

Retirements vs. Depreciation

ONE of the several more important phases of the Interstate Commerce Commission's recent order with respect to depreciation accounting is the effect it will have on net railway operating income. The carriers have for years been charging depreciation on equipment. The depreciation order now similarly requires them to charge depreciation on fixed property—including even ballast, ties or rail.

In the various comments that have appeared in these columns of late on the subject of the depreciation order it has been pointed out that a public utility is entitled to earn in rates sufficient return to yield interest and a fair return on the value of the property devoted to the public service, sufficient sums to keep the property in repair and also to permit reimbursement of the value of the property in question as it is used up in the public service. It is the last named factor that is in issue in the depreciation order and the question is as to the manner of effecting the desired result. This brings one to the distinction made between the "retirements" and "depreciation" methods of accounting. In the former case, a charge is made to operating expenses when a unit of property that has been used up in the public service is retired. In the latter case, the value of the property (less its probable salvage value on retirement) is divided by the number of years of its probable life and a charge equal to the resulting amount is made to operating expenses each year currently as the unit of property is used and a depreciation reserve is set up which can be drawn upon when the time finally comes for retirement.

Equipment Service Life

In the case of retirement accounting, in effect, the public pays in its rates, sufficient to meet the cost of the unit of property the year it is retired; in the other case the rates take up the cost of the unit currently and the depreciation fund acts as an absorbing factor. In the case of equipment the carriers have for many years used the depreciation method of accounting for service loss of value. In the case of fixed property all carriers, practically without exception, have used the retirements method. They have felt that they had good reason for such distinction with respect to the two different classes of property. For one thing, it is a comparatively simple matter to estimate the probable service life of equipment, whereas it is not so easy to estimate the life of a bridge, a tunnel or a station. In the case of track, it is usually contended that the track structure as a whole has more or less an indefinite life, presuming that it is maintained in accordance with proper standards. In a stretch of average well maintained track, it is true that at any one time the ties or rails will, by the law of averages, probably have lived one-half their service life but no railroad man will be ready to admit that that stretch of track is 50 per cent depreciated.

There is also another point in that a railroad is a vast organism, so great that the retirement of a unit of property here, or one there, can be absorbed in the whole scheme of things without particular difficulty. But there is even more to it than that, the carriers also maintain

that certain features of this problem should be left to sound business judgment. Thus, they would prefer to make the necessary charges to retirements in years when business is good and forego making such charges when business is poor. Of course, this exercise of such business judgment is impossible with depreciation accounting when like charges have to be made to operating expenses in each year.

It is true that with the more stable conditions of the past three or four years, net railway operating income has tended not to vary with the acutely wide fluctuations that were common before the war. It is true, nevertheless, that so carefully does the average railroad have control over its expenses that a small increase in gross earnings can be promptly translated into a sizeable increase in net earnings. In other words, the fluctuations do still exist. The manager of the average railroad, to paraphrase what has gone before, would prefer to do what he can to minimize the variations insofar as possible. Under the present arrangements he would be assisted in so doing by charging retirements in the good years and not so charging them in the time of poor years.

Variations in Net Income

Variations in net income are primarily an evil because of their effect on credit. Most roads, even in this present time of favorable railroad earnings, find their margin of profit uncomfortably narrow. Many observers believe that if the railroads were to have a series of bad years, the result, under the depreciation system of accounting, would be to stop dividends that can properly be paid under the present system. If that view is correct the commission will in this order have crossed the line between regulation and management.

With all its theorizing about the desirability of making the rates absorb currently costs incident to the service loss of property, there is not much doubt that the Interstate Commerce Commission has certain guiding motives. The commission, for instance, has been known to encroach upon the prerogatives of management before and it no doubt would much prefer not to let the carriers have too much discretion in a matter that would affect the size of net operating income as much as varying charges each year to operating expenses for retirements. Particularly must it keep in mind the recapture clause. It certainly would not appeal to the commission if a carrier otherwise likely in some year to earn considerable net operating income over 6 per cent would decide in that year to remove itself from the recapture class by making heavy charges to operating expenses for retirements.

Fluctuation Considered

The carriers have not as yet put themselves decisively on record as to what they expect to do with reference to the depreciation order. One reason may be that the involved technicalities are not yet adequately understood; another may be that there are differences of opinion among the carriers. It might, however, be well to consider whether the elimination of those phases of management discretion dealt with in the order is wise. Is it advisable, further, considering the narrow margins of railway profits, to eliminate the cushioning effect of charging retirements in accordance with good business judgment, which effect at present assists in no inconsiderable extent in minimizing the fluctuations of net railway operating income as between good years and bad?

Concerning Railroad Valuation

THE story of railroad valuation, when it becomes possible to write all of it, will make one of the most interesting, important and paradoxical chapters in the history of property. The recent decision of the United States Supreme Court in the valuation case of the Los Angeles & Salt Lake caused an immediate drop of four or five dollars a share in the prices of many railway stocks. Prices soon recovered when speculators learned that the decision settled none of the important questions involved in valuation. The newspaper reports actually indicated it settled nothing, and the fact that they caused a rush to sell railway stocks illustrated how little is known about this subject, even by people who might be expected to be informed.

The leader of the radical wing of the Democratic party for many years was William J. Bryan. The leader of the radical element in the Republican party throughout almost the same period was the late Senator Robert M. La Follette of Wisconsin. They both meant to be great foes of the "vested interests," and especially of the railroads and favored government ownership. It is the irony of fate that they were leaders in promoting adoption of a principle of valuation which their former followers are now trying, apparently with constantly lessening prospects of success, to prevent being adopted.

About a quarter century ago there came before the Supreme Court the famous "Nebraska rate case" (*Smythe vs Ames*). It involved the constitutionality of rates fixed by the state of Nebraska, and originated in the period following the panic of 1893 when wages and prices had sharply declined. Mr. Bryan, who was counsel for Nebraska in the case, believed it would then cost less to reproduce the railways than their original cost, and contended that the value on which their rates should be regulated was what it would cost to reproduce them. The Supreme Court, in deciding the case, held that the original cost of construction must be considered, but that great weight must be given to cost of reproduction.

There continued to be much talk about the railways being grossly overcapitalized. Mr. Bryan and Senator La Follette believed this was true. They closed their eyes to the large earnings year by year invested in the properties which might legally and morally have been paid out in dividends. They both advocated a valuation of railroads as a basis for regulation of rates, and both favored the estimated cost of reproduction as one basis, believing a valuation would be much less than aggregate railway capitalization. Senator La Follette finally got a law passed in 1913, and it specifically provided, among other things, for ascertainment of cost of reproduction.

Cost of Reproduction

It was a coincidence that the war in Europe began the year after the law was passed, but the war and its effects greatly changed the situation with respect to railroad valuation by causing a great decline in the purchasing power of the dollar—in other words, an increase in wages and prices. It necessarily caused a corresponding increase in the cost of reproduction, measured in money, of many kinds of property, including railways. The Supreme Court in numerous decisions had held that the constitutional basis for the regulation of the rates of railways and public utilities was the value of their properties at the time the rates were made. Owing to the increases of wages and prices caused by the war there developed a wide difference between the number of dollars it cost to construct property before the war, and the number of dollars required to construct or reproduce

it after the war. The question to be determined having always been held to be what was the present value, the court was virtually forced to hold, as it recently has in several public utility cases, that under existing conditions the paramount factor in making a valuation must be the probable cost of reproduction. Thus Messrs. Bryan and La Follette became largely creators of a scheme of valuation which their successors as radical leaders now denounce as a means of enabling the "vested interests" to capitalize hundreds of millions of "phantom dollars."

The question of how the valuation of an individual railway must be made apparently will not be finally and definitely determined by the Supreme Court until there is presented to it a case in which the Commission actually has used a valuation as the basis for regulation of rates or recapture of earnings. This statement calls attention to some other remarkable facts about railroad valuation. Senator La Follette, in advocating his bill, indicated it would take only a few years to carry it out. It is now fourteen years since it became a law, and as yet the validity of no final valuation of any important railway has been determined. Senator La Follette estimated the valuation of all the railways would cost only a few million dollars. The valuation work, although as yet far from finished, has cost the government about \$30,000,000 and the railroads about \$90,000,000, a total of about \$120,000,000. It is by far the most gigantic appraisal of property ever undertaken in the world's history, and it is strange that the time and money required should have been so greatly underestimated.

How Will Valuation Be Used?

Even after the question of how a railroad valuation should be made has been settled there will still remain the question of how it shall be used in regulating rates. The valuations of railways in the same territory, and operating parallel with each other, will be widely different. But the rates on competing railways must be the same. Shall the rates be based on the valuation of the railway that can earn a "fair return" on the lowest rates, or on the valuation of the railway that needs the highest rates? The Transportation Act provides that the rates of each group of railways shall be based on their aggregate valuation. Under this plan some railways will earn more than a "fair return", and some less, but it seems the only practical way of basing the rates of competing railways on valuation. Whether it is a constitutional way has never been directly passed on by the Supreme Court.

The railways long opposed the making of a valuation for the regulation of rates. It was forced upon them by Messrs. Bryan, La Follette and others. Much exciting literature is now emanating from radicals such as Senator Wheeler of Montana, who was the late Senator La Follette's running mate on the "progressive" ticket in 1924, anticipating and apprehending a valuation of billions of dollars in excess of the capitalization or property investment of the railways. They contend, in disregard of a long line of decisions of the Supreme Court, that valuation should be based on "prudent investment." They obviously mean that if an investment in a railway has proved imprudent it should be wiped out, but they do not say what they would do about an investment shown to have been highly prudent by the fact that it has proved highly profitable.

The question of railroad valuation is one of great importance, but it will not be settled for a long time. Past experience indicates that the public has little reason for reposing confidence in the views or schemes regarding this or any other railroad matter of men who do not know anything about the railroad business and are plainly animated by anti-railway prejudices.



Spring Switch Installation at Leaving End of Passing Track on Single Track

Spring Switches Used Extensively on Chicago & North Western

*Seventeen installations on eight different kinds of layouts
with special signal protection and latest
type buffers and rods*

By J. A. Peabody

Signal Engineer, Chicago & North Western

THE use of spring switches is not new on the Chicago & North Western, such a device having been in service near Ironwood, Mich. for at least 27 years. However, the general adoption of spring

switches did not receive much encouragement until the Atchison, Topeka & Santa Fe developed the oil buffer to prevent pounding and excessive wear of the switch points with the passing of each set of trucks when



Signal Protecting Spring Switch Near
South Pekin Yard



Light Signals Are Also Used to Protect
Spring Switch Layouts



Signal at Spring Switch at North End
of Double Track Near Radnor, Ill.

trailing through the switch. Starting in 1924, the C. & N. W. installed its first spring switch with an oil buffer at the west end of the yard at West Chicago, Ill., which eliminated the necessity for 24-hour switch tender service and resulted in a saving of \$5,000 per year. The successful operation of this installation brought to attention numerous other places where spring switches could be used to eliminate train stops or operators or switchmen at junction points, ends of double track, etc., such



Assembled View of Oil Buffer

that a total of 17 spring switches are now in service on eight different kinds of track layouts.

Signaling to Be Used with Spring Switches

To serve as a guide sketches of a series of layouts were prepared and approved for use on the C. & N. W., which with slight variations will probably cover all conditions. The idea back of this chart, which is shown as Fig. 1, is that of keeping trains in motion as far as practicable and yet not spend any more money than is absolutely necessary for safety.

Sketch A in Fig. 1 shows a trailing switch installed in automatic signaled double-track territory. The siding

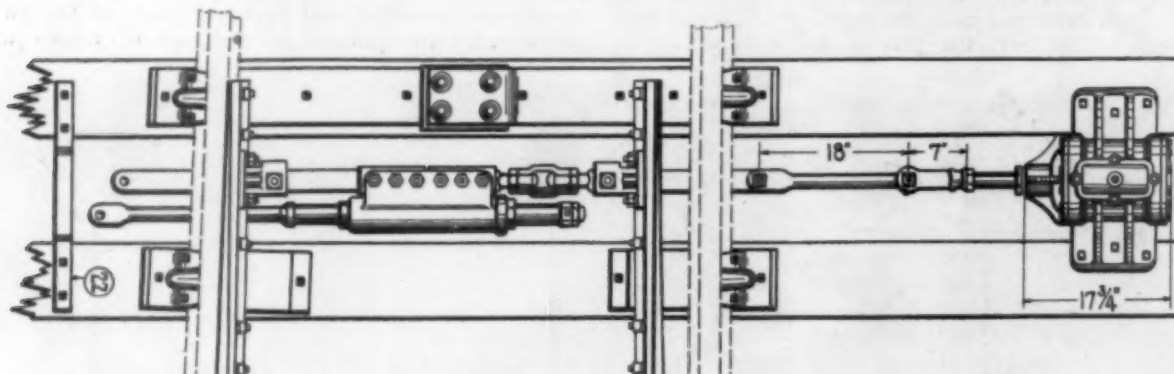
semaphore signal can be used if desired. This signal is normally in the stop position and is operated to "proceed" through an approach circuit not less than 2,500 ft. long. The signal shows red for "stop" whenever the switch is in any other than full normal position.

Sketch B in Fig. 1 is similar to A, except that the siding is sufficiently long to hold two or more trains or is a lead from a yard and it is advisable to give information so that the train need not stop when entering the main track. The dwarf signal on the siding is operated "normal danger" and is connected into an approach track circuit on the siding of such length as is desirable for operating conditions and also through a circuit indicating the approach of trains on the main track.

The conditions illustrated in Sketch C, are similar to A, and in D similar to B, except that these are for single track instead of double track installations. Conditions in Sketches E, F and G, need no explanation. Sketch H shows a condition wherein the switch at the end of a passing track in single track non-automatic block signal territory is protected by a signal. In this case a single-track circuit is installed between the clearance point of the siding with the main track and the signal, this making approximately 3,000 ft. of track circuit. The signal, therefore, gives information as to the occupancy of any portion of this territory and of the condition of the switch, the signal only being in the clear position when the track circuit is unoccupied and the spring switch is in full normal position. So far spring switches have been installed under conditions shown in Sketches A, B, C, F and H, and all have so far proved satisfactory. Experience has indicated that adequate protection is being provided.

Specific Examples of Spring Switch Installations

The advisability of installing a spring switch depends primarily on the train operation involved. The first installations were at the leaving ends of yards where the train movements were made at reduced speeds. Advantage was also obtained by not having to stop to close a switch. For example, trains pulling out of the yard at Ames, Ia., were formerly required to stop to close a switch near the bottom of a ruling grade. The installa-



Layout of Spring Switch Installation—Longest Rod to Left Is Connected to Switch Stand

in this case is only a train length long and, therefore, in order to allow a train on the main track to pass, the train on the siding must of necessity be stopped. Therefore, there is no need of giving information by which the train can keep in motion through the spring switch and the trainmen can go to the switch indicator, observe its position and give necessary information to the engineer to proceed. A dwarf signal is provided on the main track to protect reverse movements, for which purpose a color-light signal is generally used although a

tion of a spring switch eliminated this train stop, permitting an increase of 500 tons in the ruling tonnage. A plan of this layout is shown in Fig. 2.

Authority had been granted for a remote power switch installation and work started in 1925, for the operation of the switch at the end of double track at Radnor, Ill., when it was decided to install a spring switch at this point. The track layout and signaling arrangement installed at Radnor conform with that shown in Sketch F of Fig. 1. This installation eliminates two stops for each

eastbound train. The majority of the traffic handled on this line is tonnage freight, the speed being limited by grade in the direction against the facing point so that it does not exceed 25 or 30 miles an hour. The speed of trains eastbound to the single track, when trailing through the spring switch was limited to 10 m.p.h. when the spring switch was installed but later experience has led us to believe that this limit can be raised safely.

Spring Switches Applied to Passing Trucks

With spring switches in successful operation at yard leads and ends of double track the next step was to apply them for passing track switches. On this same freight line 13 miles south of Radnor, is a passing track 6,300 ft. long, which is used a great deal as it is the only siding on 12 miles on a piece of busy single track. In order to eliminate the stops required to handle the switches it was decided to install spring switches, so connected as to, in effect, produce a short piece of double track by diverting all westbound trains through the passing track, the eastbound trains holding the main track. If no

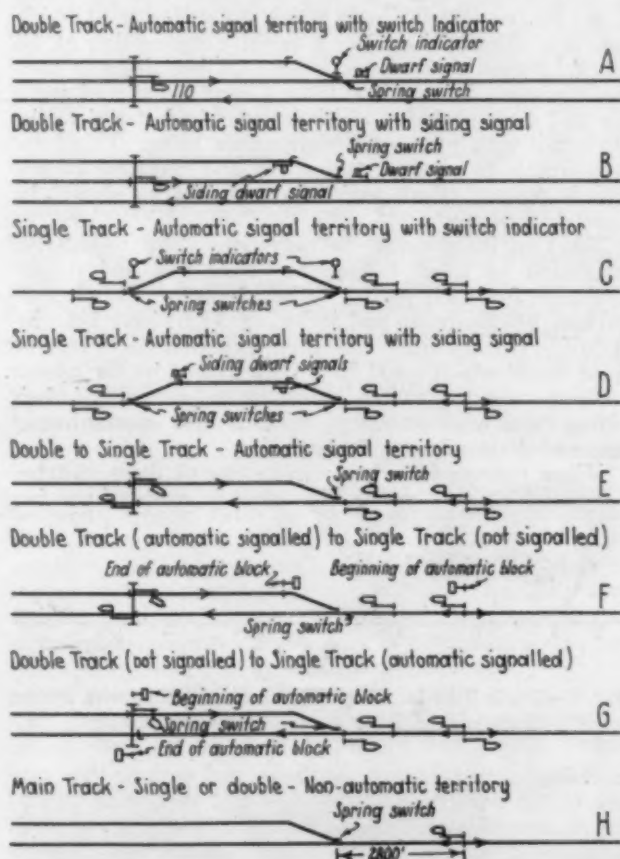


Fig. 1—Track and Signal Plans of Spring Switch Applications on C. & N. W.

trains are to be met no stop is required, or if a good meet is made neither train stops, the trains trailing out through the spring switches without stopping. New leads with No. 20 frogs were installed to permit high-speed movements over the turnouts. Automatic signal protection is provided to stop trains if the switches are not in the correct position for the train movements as shown in Sketch H, Fig. 1.

The use of spring switches for passing tracks on high-speed double-track territory were the next applications. At Cortland, Ill., a two-mile eastbound passing track is used by many freight trains. In order to eliminate the

necessity for these trains stopping to close this switch when pulling out, a spring switch was installed and additional signal protection provided, as shown in Sketch A of Fig. 1. The standard practice on the Chicago & North Western is to run trains normally on the left-hand track on double-track lines. The switch indicator at the switch informs trainmen when the track is clear for the train to pull out. The existing automatic signal, No. 110, provides protection for the train while pulling out and also indicates stop if the switch is not in the proper normal position at any time. The dwarf signal was installed as a switch protection for any emergency reverse traffic movements and as a back-up signal.

Unusual Applications at Yards and Junctions

At one of our new yards where a switching lead was not provided, considerable delay to main line trains was

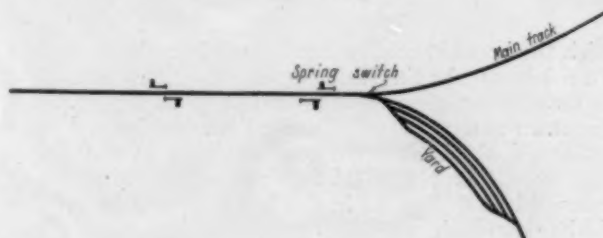


Fig. 2—Track Layout at Ames, Ia., Where Spring Switch Is Used at the End of a Yard

anticipated due to switching on the main track. In order to permit the use of a section of main track for this purpose and yet not hold up main line trains, two sets of crossovers with spring switches at one end of each have been installed recently at Proviso, Ill., as shown in Fig. 3. With this arrangement trains switch on the westbound main and the eastbound main is used for a short distance as single track.

The combinations in which spring switches may be used seems to be unlimited. We now have request for authority to install about eight miles of single-track automatic signals between a junction point, the switch of which is operated by means of a low-voltage distant control switch machine, and a large terminal yard at which point the train dispatchers are located. (See Fig. 4). Between these two points is a long passing track at the foot of a heavy grade. It is proposed to equip the two ends of the passing track with spring switches, making it a short piece of double track, and to connect the junction switch into and operate it from the dispatcher's office. The dispatcher will also have control of the leaving signals at both ends of this piece of track which must be used by the trains of two divisions. By this means the dispatcher, without any additional operators, will handle this layout and trains can operate to or from either of the divisions and, if a good meet is made, pass at the intermediate point without stopping.

Development of Buffer Spring Switch in Brief

On account of the scarcity of men during the world war, T. S. Stevens, signal engineer of the Atchison, Topeka & Santa Fe, installed a spring switch at a branch line junction, with automatic block signal protection and found not only that it worked successfully but that he also saved the expense of maintaining two switchmen and a switch shanty. This installation included an air buffer furnished by the Pettibone-Mulliken Company to provide the slow return motion of the switch points.

This air buffer type did not prove successful on account of the condensation of water in the air within the

cylinder, which froze in the colder climates. However, the advantage of the buffer was quite evident and in 1922 an oil buffer was developed by the manufacturers and installed on the Santa Fe. The first oil buffers had a return pipe with a check valve across the top of the cylinder. In co-operation with several roads now interested in spring switches the Pettibone-Mulliken Company has continued developments of this type of spring and the buffer.*

An action to retard the closing of the switch point is desirable up to a certain predetermined point, beyond

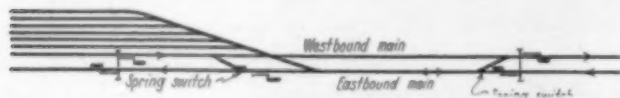


Fig. 3—Layout at Proviso Yard Where Two Spring Switches Are Used

which the speed should be accelerated in order to reduce to a minimum the time and increase the force of closing the switchpoint, thus insuring a tightly closed point on the return movement to its normal set position. A suggestion of F. C. Stuart, signal engineer of the Elgin, Joliet & Eastern, resulted in changes of design which accomplished this result in the latest type of buffers, as will be described.

As the switch is forced over by the first wheel of a train trailing through, the piston rod, piston and attached parts are forced to the left with a quick stroke, the force of the oil pouring through the large holes in the piston, forcing a disk valve open against the force of a small coil spring. The full movement of the switch point places the piston near the left end of the cylinder, leaving the force of the spring in the head rod to pull the piston back against the oil pressure and forcing oil through a small groove above the piston. Each succeeding wheel tends to hold the piston to the left until the entire train passes through. In the meantime the movement of the switch point is hardly perceptible if the train is moving over 10 m.p.h. After the train passes, the oil runs around the piston through this little groove until the piston is about half way over, and then, as the larger groove covers the piston, the pressure is relieved and the force of the spring in the head rod is more effective, forcing the piston over faster and finishing the return stroke with force enough to bring the switch point tightly into its normal position. The idea of these grooves of different sizes was suggested by Mr. Stuart.

To hold the switch against the stock rail while the train is trailing through, it is necessary to maintain a full cylinder of oil as any air in the cylinder will cause a rapid movement of the switch point away from the stock rail between two trucks of a passing train. To avoid this difficulty an oil reservoir was adopted, which serves a further important purpose of taking care of the expansion of the oil. The physical characteristic of the oil should be such that the viscosity is approximately constant at temperatures between 125 deg. and 40 deg. below zero. In order to obtain this result we change the oil in the spring and fall.

Developments in Spring Head Rod

In the earlier type of spring switches the spring formed a part of the switch stand connecting rod while the regular head rod was used. The improved type of head rod for spring switches now includes a set of double-coil springs enclosed in a cast-steel tube and

mounted on the head rod. These springs are opposite winds, heat treated, and will withstand a fibre stress of 115,000 lb. per square inch and were adopted after considerable experimenting under actual service. The head rod is also provided with a turnbuckle for adjusting the gage of the switch points. An extra sleeve is furnished, which can be attached to the rod to provide spring movement in one direction only.

Switch Must Be Well Constructed and Maintained

Through actual service it has been found that the points should be heavily reinforced. The recommended practice is reinforcing bars 1¼ in. thick on the gage side for 16 ft. 6 in. switches and shorter, and a 1¼ in. bar on the gage side with a ¾-in. bar on stock rail or back side for longer points. These bars are attached to the switch points with high tensile bolts as it has been found that rivets become loose, due to the weaving motion produced. The reinforcement is added to prevent a lateral bend on the switch points, caused by the side thrust of the first trucks of the locomotive as it trails through.

The switch points are also equipped with an extra heavy forged socket clip to which the spring head rod is attached, thereby insuring a positive connection at all times between the rod and point. A heel joint is used that consists of a cast heel filler, a bent and planed angle bar and a pipe thimble which is securely fastened to the stock rail with four long, high tensile bolts. This joint is desirable to prevent movement and creepage of the switch points. Both main and side tracks should be securely anchored.

We find it advisable to provide a solid foundation consisting of good ballast, first-class ties and proper drainage for each spring switch layout. Switches of various lengths up to and including 30 ft. have been installed. No difficulty has been experienced or undue wear found which could have been caused by the wheels pushing over the switch points or on account of their riding them when so doing. C. & N. W. standard main line switch stands are used.

When trainmen need to operate one of these switches for switching cars, recognition must be made of the fact



Fig. 4—Track Plan for Single Track Installation with Spring Switches on Both Ends of Passing Track

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Pennsylvania Rebuilds Tunnel Under Adverse Conditions

Metal shields protect rail traffic while underpinning of pavement precludes interference to street traffic

WORKING under the difficulties presented by a heavy street traffic overhead and heavy rail traffic within, the Pennsylvania has recently completed the reconstruction and enlargement of its double-track. Thirty-second street tunnel in West Philadelphia, Pa., a project which involved intricate detailed planning and a number of unusual construction problems. Rushed by the very nature of the work, which necessitated single track operation through the tunnel during alterations, the arch ring and the bench walls of the old tunnel were completely removed through their entire length 754 ft. and were replaced by a rectangular steel and concrete lining of larger dimensions, in 144 days, the reconstructed tunnel having been restored to normal operation on December 12, 1926. The most important and interesting features of the work resulted from the methods employed to protect traffic within the tunnel during construction, and to prevent interference to the heavy street traffic on the important streets crossing the tunnel at each end. The effectiveness with which these methods were carried out is evidenced by the fact that with an average of 325 trains through the tunnel daily, and with more than a thousand vehicle and street car movements over it hourly, no delay of any consequence was encountered and no mishap occurred.

Enlargement of Tunnel a Link in

New Passenger Terminal Project

The tunnel lies directly beneath Thirty-second street, between Chestnut street on the south and the intersection of Market street and Woodland avenue on the north, just south of the Pennsylvania's West Philadelphia station. It was built about 60 years ago and provides the outlet for the Pennsylvania to the South, carrying all of the trains of its Southern division to Wilmington, Baltimore and Washington, and of its Octoraro branch.

The enlargement of this tunnel is intimately tied up with the Pennsylvania's plan for a new passenger terminal at West Philadelphia to replace the present Broad



The South Portal of the Tunnel as Reconstructed

Street station in the center of the city. This new terminal, which is to be built on the west bank of the Schuylkill river, just east of the present station at West Philadelphia, presumes also the construction of a large underground suburban station just north of the present Broad Street station, which in turn will necessitate the electrification of all of the Pennsylvania's suburban service in and out of Philadelphia. This latter preliminary work, which has been under way since 1915, was expanded recently to include the electrification of the suburban lines to Wilmington, Del., and to West Chester, Pa., both of which use the street tunnel. The authorization of this work immediately presumed the enlargement of the tunnel as its present clearances would not permit the operation of the larger electrified equipment through it. Another important factor having a bearing on this work is the proposed track layout of the new station at West Philadelphia which contemplates a set of loop tracks south of the station, connecting with the tunnel, whereby through trains between New York and the West can move through the station and on to their destination in one continuous route. The electrification of certain of the equipment in this service also required that the tunnel be enlarged.

Previous to its reconstruction, the Thirty-second street tunnel was a double-track structure with ashlar masonry bench walls and a six-ring brick arch. As its width of 24 ft. and height of 16 ft. would not provide sufficient clearance for the new equipment to be used, the reconstructed tunnel was made of the rectangular type, 31 ft. wide and 18 ft. 6 in. high.

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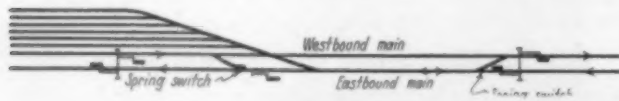


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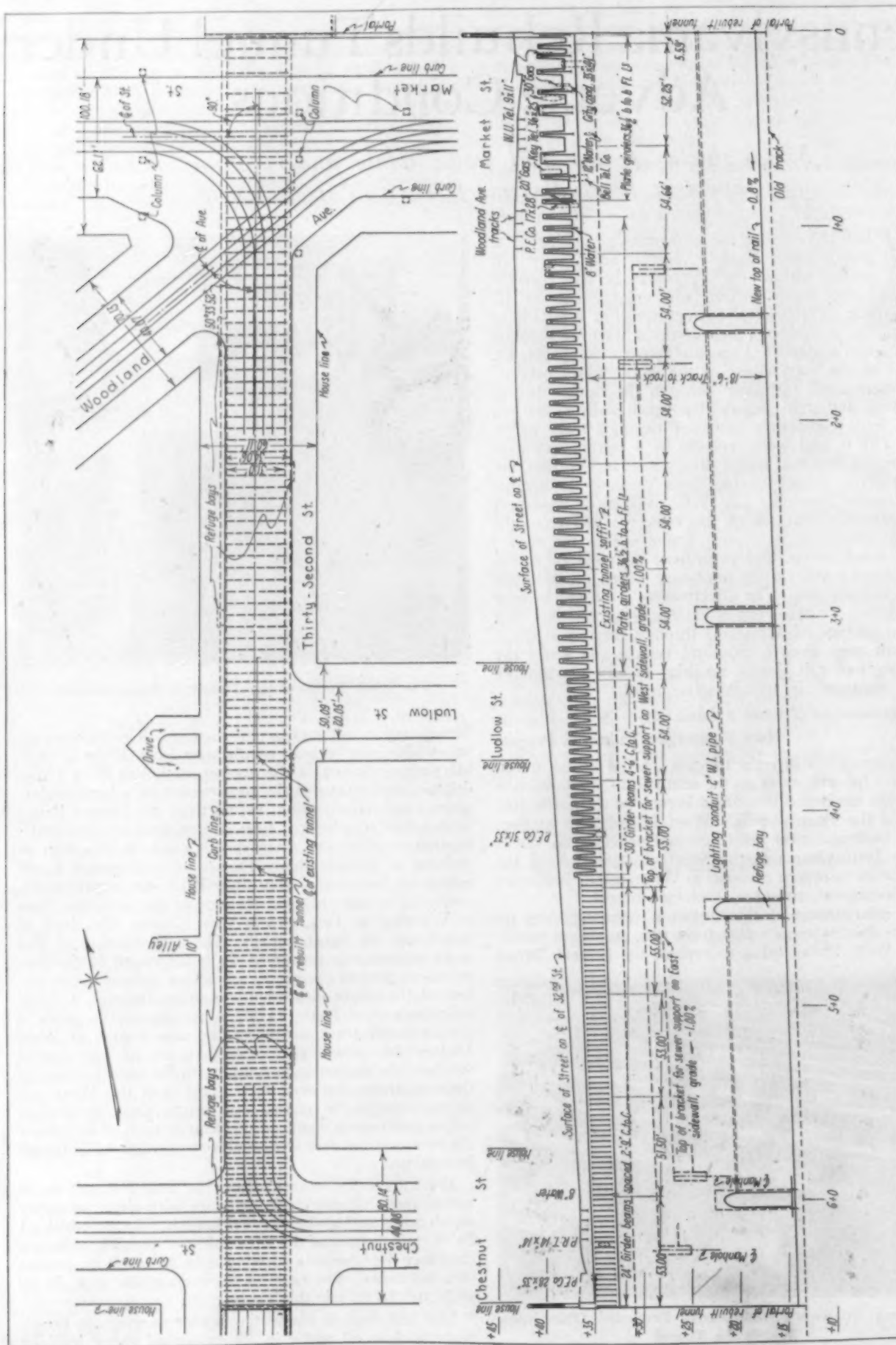
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Supporting Formwork from Above Precluded Obstruction Within the Tunnel



Chestnut and Market streets; to remove the two lines of car tracks and the stone block pavement in the street; and then to remove the over-burden over the tunnel, which ranged from about three feet in depth at Chestnut street to about seven feet just south of Market street. For the most part the removal of the over-burden in the open was done by a steam shovel and involved little difficulty. Below this, the tunnel haunching of rubble masonry and the brick arch ring were drilled and blasted out with care, heavy rope mats being used and every precaution taken to prevent scatter and damage within the tunnel or to property about it.

Metal Shields Protect Train

Movements Within Tunnel

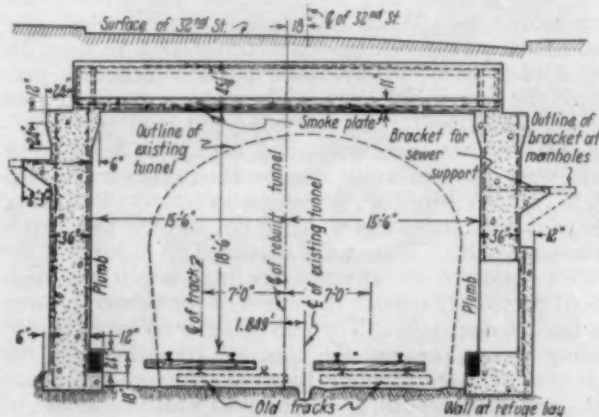
The method of protecting train movements through the tunnel while this work was going on proved most effective. This included the use of two portable metal shields, 30 ft. in length, within the tunnel which conformed closely to the soffit of the arch ring. These shields consisted of $\frac{1}{4}$ -in. boiler plates, covering a framework of 11 curved 8-in. I-beams which were supported on each side of the tunnel by 10-in. by 10-in. vertical timbers. The shields in each case were constructed in 3-ft. sections, directly over the tracks at the south portal of the tunnel, all of the parts being rigidly riveted or bolted together. In order to provide for moving the shields, the bases of the upright timbers, in each case, were fitted with a double flanged wheel which operated on a rail runway, resting on 12-in. by 12-in. stringers along each side of the tunnel. As this arrangement reduced the side clearances materially, it was necessary to line the tracks of the tunnel to 6-ft. centers. This precluded train movements on both tracks at the same time, but by the careful timing of trains, practically no delays to traffic were necessitated.

Special features of the shields, which were moved by winches, included provision for the jacking up and wedging of each post while work was going on directly above, and the provision of a hinged apron along each side of the shields. Each of these aprons consisted of a rigid section of the same construction as the main shield, about $2\frac{1}{2}$ ft. high, which was pivoted about the lower edge of the shield proper at each I-beam. With this arrangement, it was possible to lower the shields on the rail runways, draw in the aprons and move them within the tunnel without regard to minor deviations in the arch ring or bench walls which otherwise would have interfered. When the shields were jacked up into place against the arch ring, the aprons on each side were then forced out against the tops of the bench walls, precluding the possibility of excavated material dropping down into the tunnel while work was going on above. With one shield at the south end of the tunnel and the other at the north end, the work progressed toward the center, about 20 to 22 ft. of the old tunnel being removed at a time.

The work of removing the material in the haunching and the arch ring was greatly facilitated by the use of light gantry travelers which operated over the tunnel on 30-in. I-beams, 40 ft. in length. These I-beams were spaced across the tunnel at the street level, the ends being supported by 12-in. by 12-in. stringers. The travelers, which operated on portable tracks of 10-ft. gage, also greatly facilitated the removal of the old bench walls and the handling of the 24-in. and 30-in. permanent steel I-beams which were used in the construction of the tunnel roof and placed on the new bench walls when they were completed. As the new bench walls were to lie wholly outside of the old walls, the work of blasting out the solid rock backing of the old walls, the placing of forms, and the pouring of the concrete for the new walls,

was carried on quite independently of the other work. The excavated material, for the most part, was removed by the gantry travelers, and when the forms were constructed the concrete was poured direct from contractor's motor trucks which were used to haul the concrete from a central mixing plant. When the steel-work of the new roof structure was in place, forms were built and the concrete of the roof slab was poured in the same manner, protection to the trains operating within the tunnel being afforded throughout these operations by the shield beneath.

Progressing in this manner all of the old tunnel be-



Typical Section of Tunnel Showing Relation of New Work to Old

tween Chestnut street and the intersection of Woodland avenue and Market street was rebuilt, following which the roof slab and bench walls were waterproofed with emulsified asphalt put on at least $\frac{1}{8}$ in. thick without a protective covering. Back-fill over the new tunnel was made with gravel carefully placed to fill all voids. Towards the end of the work, after this material had been allowed to settle, the new street car tracks were laid permanently and the stone block pavement of Thirty-second street was relaid temporarily, it being the intention to allow traffic to compact the back-fill thoroughly before the permanent pavement is laid on a concrete sub-base.

Keeping Traffic Open on Cross Streets

Involved Some Difficulties

Owing to the fact that neither surface trolley service nor the vehicular traffic could be interfered with in Chestnut street, Market street and Woodland avenue, all of the work at these points had to be carried out beneath the street pavements, except along the south side of Chestnut street and the north side of Market street where the tunnel was uncovered outside of the car tracks.

At the intersection of Market street and Woodland avenue, where the difficulties presented were the most severe, practically all of the material between the concrete foundation slab of the street pavement and the arch ring of the tunnel had to be removed by drilling and by hand. As this material was taken out, 12-in. by 12-in. upright posts, with 5-in. by 12-in. caps and base sills about 4 ft. long were wedged into place between the street slab and the arch ring to support the street traffic. This work progressed from along the sides of the tunnel towards the center. As excavation was completed under Market street and Woodland avenue, concrete footings were put in along each side of the tunnel outside of the proposed location of the new

bench walls, to support the plate girders of the new roof structure until the new bench walls could be constructed, 36½-in. plate girders being used at this end of the tunnel because of the greater depth of overburden and the greater amount of traffic.

With the excavation of the material above the arch ring completed and the temporary footings in place, the girders, of special length, were pulled horizontally into place by winches, one at a time, over 12-in. by 12-in. longitudinal stringers along both of the sides of the tunnel.

This was a slow job as each of the pavement-supporting posts from the tunnel arch had to be taken down as it was reached and replaced after the girders had been pulled by. When the girders were in place, the load of the pavement above was transferred to them by means of short 12-in. by 12-in. posts, which then permitted the removal of the arch haunching, the ring, and the old bench walls. In removing much of this material, blasting was necessary, and here also, heavy rope mats were used to avoid danger to surface traffic, the shield beneath affording protection to trains. Following this work the tunnel was widened out and the new bench walls were built. These walls extended up to support the girders inside of the concrete footings which had been placed previously outside the limits of the tunnel to carry the loads temporarily. The remaining work consisted of placing forms, pouring the concrete encasement of the roof girders, waterproofing the roof structure and bench walls and then depositing the backfill which consisted of good gravel. In each case, placing of the concrete was facilitated by leaving the vertical timbers in position and by chuting the concrete into place through several small openings cut in the pavement for this purpose.

In addition to the difficulties mentioned, another of considerable importance from a standpoint of slowing up the work, was the existence of a large number of pipe lines and conduits crossing the tunnel, these ranging from small units up to 12-in. water mains, 30-in. gas mains and 35-in. by 41-in. power conduits. As practically all of these interfered with the enlargement of the tunnel and the location of the I-beams or girders of the new roof structure, it was necessary in the majority of cases to install elbows in the lines on either side of the tunnel, and to carry them over the tunnel clear of street traffic during construction. With the completion of the roof structure and just previous to back-filling, these lines were again placed beneath the street in new locations between the concrete-encased steel roof members.

By November 29, 1926, all of the major work on the tunnel has been completed, and the principal work remaining consisted in lining the tunnel tracks back to full centers and resurfacing them. This was completed on December 12 when the tunnel was restored to normal double-track operation. In all, the work consumed 144 days, within which time one hundred and fifty-seven 24-in., 30-in. and 36½-in. I-beams and plate girders had been set in place, 6,300 cu. yd. of concrete had been poured, and 18,000 cu. yd. of excavation removed, this latter material including 2,300 yd. of stone masonry, 1,960 yd. of brick-work in the arch ring, and 1,130 yd. of stone and concrete backing.

The work of rebuilding the Thirty-second street tunnel was done by the Keystone State Corporation, Philadelphia, under the general supervision of A. C. Shand, then chief engineer of the Pennsylvania, and E. B. Temple, chief engineer, Eastern region of the Pennsylvania. The actual planning and carrying out of the work was in the direct charge of Robert Farnham, then engineer of bridges and buildings, who was represented in the field by R. K. Matlock, assistant engineer.

Approve Settlement of Oregon Construction Controversy

WASHINGTON, D. C.

THE Interstate Commerce Commission on February 26 made public a supplemental report by Commissioner Aitchison in the Oregon construction case, expressing the opinion that the proposal of the Southern Pacific, offering the joint use of its line between Paunina and Klamath Falls, Ore., to the Oregon Trunk, with certain modifications, is in substantial compliance with the conclusions announced in the original report in this case last year. In that report it authorized the construction of several new lines in Oregon, including a line of the Oregon Trunk from Bend to a point of connection with the Southern Pacific's Natron cut-off, if it should be granted trackage rights over the line between Paunina and Klamath Falls. The commission also authorized the Oregon, California & Eastern to construct proposed extensions and authorized the Southern Pacific to acquire control of the O. C. & E., conditioned upon its grant to the Oregon Trunk of operating rights over its line or that of the O. C. & E.

The railroads after several conferences failed to reach an agreement but recently submitted to the commission the results of their negotiations in the form of memoranda. The Public Service Commission of Oregon, which had filed a complaint with the commission asking it to require the railroads to build various new lines in Oregon, which complaint was dismissed by the commission, also filed a petition for a re-opening of the case, with a view to presenting new evidence, particularly as to the proposed line between Harriman and Odell, Ore., but the commission, in the supplemental report, suggests that the grounds of complaint of the Oregon commission can best be dealt with upon a new record and the petition was denied without prejudice to the filing of an appropriate new complaint.

Commissioner Eastman, in a concurring opinion, expressed the opinion that in determining the compensation for the use of the Southern Pacific line interest on cost as well as taxes and operating expenses, should be apportioned on the basis of use, and that the petition of the Oregon commission for re-opening and rehearing should have been granted. Commissioner McManamy dissented, saying that the Oregon petition should not have been denied on technical grounds but should at least be considered on its merits, and, he believes, should be granted in full. The majority opinion says in part:

In our report, order and certificate, issued May 3, 1926, we dismissed the complaint in Docket No. 14392, and granted unconditionally the authority requested in Finance Dockets Nos. 4914, 5111, and 4924, but reserved final action in the remaining cases pending the consideration and acceptance or rejection by the carriers of proposed modifications of their plans which we believed to be in the public interest. The general question thus reserved, briefly stated, was that of the best arrangement whereby the Oregon Trunk Railway and its connecting lines, collectively referred to as the northern lines, may be given access to the traffic originating in or destined to the Klamath Basin in southern Oregon.

Pursuant to this statement of our views, various conferences have been held by the interested carriers with each other and with us. The Southern Pacific first proposed that the Oregon Trunk use its line between Paunina, Ore., and Klamath Falls merely as a bridge line, performing no local service between those points. The Oregon Trunk objected to such limitation of operation, as well as to other terms of the proposal, whereupon the Southern Pacific offered various concessions. The latest and final proposals of the carriers have been reduced to memorandum form and are supported by briefs filed with us setting forth in detail the contentions of the parties. The present proposal of the Southern Pacific may be summarized as follows:

The Oregon Trunk Railway is offered the joint use of the

line of the Southern Pacific between Paunina and the north switch at Klamath Falls, with permission to perform local service, either party to construct branches either west or east of the main line, with equal opportunity for the other to join therein, provided that the western branches shall not extend beyond the summit of the Cascade Range, and the eastern branches shall not extend into territory properly tributary to the Oregon, California & Eastern Railway lines, as proposed to be extended. The Oregon Trunk is to be permitted to receive and deliver freight at Klamath Falls proper, paying the Southern Pacific customary switching charges for its service. The Oregon Trunk is further to be permitted to use the line of the Southern Pacific through Klamath Falls as a bridge line to reach the terminal property of the Oregon Trunk south of Klamath Falls. The Oregon Trunk is to pay rent at the rate of 5 per cent per annum on one-half of the cost of the facilities, but not to exceed \$165,000 per annum, one-half of taxes thereon, and its proportion of maintenance and other joint operating expenses on the basis of use.

The proposal of the Oregon Trunk Railway is that it shall pay its share of 5 per cent per annum on the cost of the property in proportion to its use, with a minimum of one-fourth of 5 per cent; that taxes, as well as maintenance and other operating expenses, not directly allocated, shall be assumed by the respective companies in proportion to use; that the Oregon Trunk shall be permitted to purchase and own one-half interest in the Oregon, California & Eastern at cost to the Southern Pacific, with the understanding that extensions to that railway shall be joint, except where one of the parties declines to participate in the extension. Should the Oregon Trunk not be permitted to acquire the proposed interest in the Oregon, California & Eastern, it insists that it be permitted to construct its own line from Chiloquin, a point 27 miles north of Klamath Falls on the Natron cut-off, eastward to Sprague Landing, a distance of 30 miles, and, in addition, shall have the right to extend its lines to the east and north from Sprague Landing, such extensions, in order to conserve capital expenditure, to be made at joint expense. It has before us no applications for the issuance of a certificate of convenience and necessity for the last mentioned lines.

However, the Oregon Trunk asserts that its annual charge at the terms offered by the Southern Pacific, together with the capital cost of the branch from Chiloquin, would exceed that of its own proposed line from Paunina to Klamath Falls; hence it urges the acceptance of the latter plan. It states that since the hearing it has been informed that more lumber is to be manufactured upon the Sprague River than was anticipated at that time; that its proposed line between Paunina and Klamath Falls would reach more timber than is reached by the Natron cut-off; that the purpose of giving the Oregon Trunk access to the Klamath Falls traffic will not be accomplished unless it can have access to the timber tributary to the Oregon, California & Eastern; and that it can not count upon a fair opportunity to share in the out-shipments of lumber produced from logs hauled to Klamath Falls by the Oregon, California & Eastern, due to the various influences which tend to link up the out-shipments with the in-shipments. The Southern Pacific, on the other hand, takes the position that the contentions of the Oregon Trunk are basically wrong, since that company has no supportable right to enter the Klamath Basin at all, pointing out that the quantity of timber tributary to the Oregon Trunk in northern Oregon is nearly equal to the quantity in the Klamath Basin, but that the Southern Pacific has made no attempt to secure an interest in the timber traffic in the former territory. It represents that it needs the traffic of the Klamath Basin to pay a return on the great cost of construction of its lines in that territory and the development of its traffic. And it insists that its proposal is in full conformity with our views as expressed in our report of May 3, 1926. Attempt has been made to set forth here only the main contentions. The memoranda of the carriers are necessarily somewhat lengthy. They have been interchanged and copies have been supplied to all parties of record herein. They will be made a part of the record herein, open to inspection, but no useful purpose is to be served by copying them in this report.

As stated in the original report, a controlling purpose in our decision upon the application of the Oregon Trunk was that while Southern Oregon should be linked with the northern lines, in doing so unnecessary capital expenditure involved by the construction of an additional through line between Paunina and Klamath Falls should be avoided by the utilization of existing facilities. Such purpose is still controlling. The proposals of the Oregon Trunk for the independent construction of its own line are inconsistent therewith. We regard it as important that there shall be no unnecessary duplication of facilities. We are of the opinion that the present proposal of the Southern Pacific, with the modifications we here suggest, is in substantial compliance with the conclusions announced in our original report.

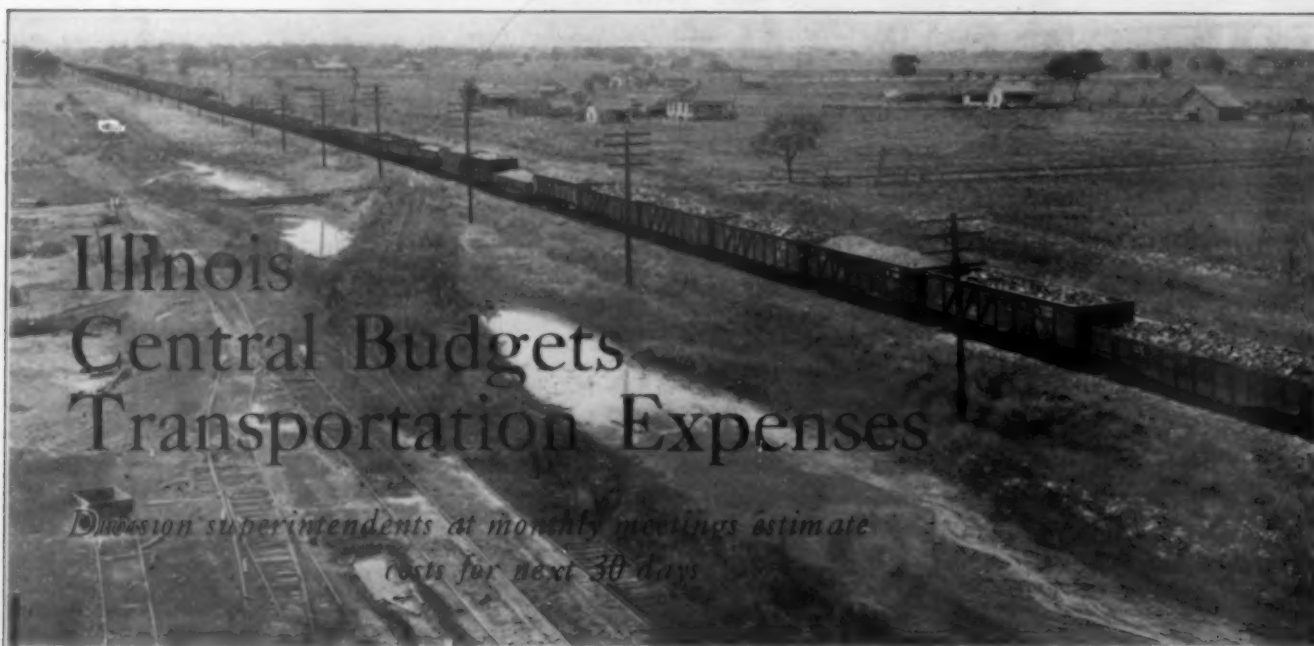
The proposed terms are generally fair. Some modifications in details are desirable. Taxes on the property jointly used may properly be apportioned between the parties on the basis of use, in conformity with the more usual practice under similar circumstances. The commission and the carriers are proceeding upon the basis of the facts as now apparent. Obviously the parties should not undertake to disable themselves or the commission from taking any action required or warranted by law, in the future, when the facts have materially changed, or when conditions now fair become inequitable to either party or to the public, or may be inconsistent with law. Suitable reservations should be incorporated, applicable to the whole subject matter of the contract proposed, and to the terms in detail. The proposed limitation upon the construction of branch lines, or the extension of main lines, is not a proper subject of contract. Such provisions could have no value or force, save as declarations of intention or as a check upon the filing of applications with us. Obviously, we must deal with any future applications in connection with either main- or branch-line projects upon the basis of the public convenience and necessity when the applications are made and upon the record as then made out. It might, under certain circumstances, be incumbent upon us to require construction by one or the other of these carriers, in which event there should be no outstanding contract which would even nominally interfere with the compliance with an order for construction. However, no complete contract has yet been prepared, so far as has been shown. There are many details necessarily incident to trackage agreements that have not yet been discussed. An order which will give finality to these conclusions will not be entered at the moment: the Southern Pacific will be allowed 25 days from the service hereof in which to prepare and present to the Oregon Trunk and to file with us a complete draft of contract, and the Oregon Trunk within 20 days after such filing should notify us whether the terms proposed are acceptable, or to except to them as not consistent with our conclusions or with proper usage in trackage agreements. Compliance herewith will facilitate removal of the conditions upon the construction by the Oregon, California & Eastern, and upon the acquisition of the control by the Southern Pacific of that line.

The Public Service Commission of Oregon has recommended that the Oregon Trunk be given access to the Klamath Basin and to the territory between Paunina and Klamath Falls, substantially as requested by that company. For the reasons given we are unable to conclude that such a result would best serve the public interest.

The Oregon Commission has also filed with us a petition for the reopening of the proceeding under Docket No. 14392 for rehearing. It represents that important developments and changed conditions occurring since the proceeding was submitted have prevented us from passing on the merits of the complaint in the light of such changed conditions. An opportunity is sought to present new evidence, particularly as to the proposed line between Harriman and Odell.

But passing this matter of orderly procedure, the manner in which the changed grounds of complaint of the Oregon Commission can best be dealt with is upon a new, clean record, based upon the conditions as they may exist at the time of hearing, unincumbered by the mass of matter which was proper in these consolidated cases but would be irrelevant upon the narrower issue now supported by the Oregon authorities. As indicated, the record in Docket No. 14392 is based upon a situation which, to a considerable extent, no longer exists. The construction proposed by the carriers under the finance applications will serve a portion of the territory proposed to be served by the lines sought in Docket No. 14392. Our rules provide a means whereby the former record, so far as pertinent, may be utilized upon a new complaint between the same parties. There is much in the former record which can have no pertinency upon the present state of facts. If, after considering our views as to the disposition of the finance dockets, the Oregon Commission desires to urge the building of the Harriman-Odell line, a new complaint with that object may be filed. The application to reopen the proceeding for rehearing will therefore be denied by an appropriate order.

PERSONS KILLED OR INJURED at highway crossings (except passengers in buses or street cars) are usually chargeable with negligence and the records show a great variety of negligence. According to a compilation made by Chairman H. A. Rowe, of the crossing accident committee, A. R. A., the number of persons (automobile drivers and their passengers) killed, during 1926, by running into the sides of standing trains, was 200; and of injured, 1,300.



Trains Such as This are Recognized in the Budget

THE Illinois Central is a convert to the theory that operating expenses, like maintenance of equipment and maintenance of way expenses, can be budgeted, and a material reduction of such expenses effected as a result. Since this theory was put into practice as early as 1912, the Illinois Central may claim to be a pioneer in this regard.

While maintenance of way and maintenance of equipment expenses have been budgeted for years, it has been argued that transportation expenses do not lend themselves to such treatment. It is contended that while a definite program can be laid down for maintenance expenses, transportation expenses fluctuated with the flow of traffic and can not be controlled. While it was realized by the Illinois Central that transportation expenses do fluctuate with the traffic, it was also believed that the volume of traffic may be estimated with a sufficient degree of accuracy for budgeting purposes. There are also certain fixed transportation expenses, which do not vary with the traffic, including supervision, despatching, station forces at small stations, clerical forces at large stations, passenger forces at stations, yard expenses at small yards, yard supervision and clerical forces and expenses at crossings, interlockers and drawbridges. The total of these expenses amounts to a very considerable portion of the total expenses on most railroads and is a stabilizing factor in the transportation budget.

Monthly Budget More Expedient

Although it has been found possible on some railroads, notably the New York, New Haven & Hartford, to prepare an annual transportation budget, the Illinois Central has found it more expedient and better suited to its operating conditions to prepare monthly budgets. Prior to the first of each month, a careful estimate is prepared by the operating department statistician of revenues, expenses, taxes, equipment rents, interest charges, etc., for the succeeding month. This is the foundation on which the actual control of expenses is built. It is prepared after giving careful consideration to the trend in current business, past experience and seasonal fluctuations in traffic. The estimate is then submitted to the

executive officers, supported by papers setting forth the details of expenditures to carry out predetermined programs, special items of expense necessary to be incurred and other pertinent data, such as quantities of materials, man hours, etc. Tentative budgets of transportation, maintenance of way and maintenance of equipment expenses are prepared from the estimate of revenues, after



Passenger Train Operation is Included in the Budget

due consideration has been given to the subject by all of the general officers concerned.

The Budget in Detail

In the meantime, each division superintendent prepares an estimate of the budget he will need to operate his division for the coming month. This is gone into in great detail and covers the following items:

- Transportation Supervision—
 - Administration.
 - Superintendence—Salaries.
 - Superintendence—Expenses.
 - Despatching Trains.
- Passenger Train Expenses.
- Passenger Train Miles—
 - Passenger Enginemen.
 - Train Motormen.
 - Fuel for Passenger Locomotives.
 - Train Power Produced.
 - Train Power Purchased.



Water for Passenger Locomotives.
Lubricants for Passenger Locomotives.
Other Supplies for Passenger Locomotives.
Enginehouse Men—Passenger.
Enginehouse Supplies—Passenger.
Passenger Trainmen.
Lighting Passenger Cars.
Cleaning and Lubricating Passenger Cars.
Other Supplies and Expenses for Passenger Trains.
Freight Train Expenses.
Freight Train Miles.
Gross Ton Miles (Thousands)—
Freight Enginemen.
Fuel for Freight Locomotives.
Water for Freight Locomotives.
Lubricants for Freight Locomotives.
Other Supplies for Freight Locomotives.
Enginehouse Men—Freight.
Enginehouse Supplies—Freight.
Freight Trainmen.
Refrigerator Car Supplies and Expenses.
Other Supplies and Expenses for Freight Trains.



Icing of Cars Is a Transportation Expense

Station Expenses—
Station Agents, Clerks, etc.
Other Station Services.
Weighing, Inspection and Demurrage Bureaus.
Lighting Stations.
Other Supplies and Expenses for Stations.

Yard Switching Expenses.
Yard Switching Hours.
Cards Handled (Yards)—
Yard Masters and Yard Clerks.
Yard Conductors and Brakemen.
Yard Switch and Signal Tenders.
Yard Enginemen.
Yard Motormen.
Fuel for Yard Locomotives.
Yard Switching Power Produced.
Yard Switching Power Purchased.
Water for Yard Locomotives.
Lubricants for Yard Locomotives.
Other Supplies for Yard Locomotives.
Enginehouse Men—Yard.
Enginehouse Supplies—Yard.
Yard Supplies and Expenses.
Telegraph and Signals—
Interlockers—Operation.
Block Signals—Operation.
Other Signals—Operation.
Telegraph and Telephone Labor.
Telegraph and Telephone Supplies and Expenses.
Miscellaneous—Transportation—
Crossing Protection.
Drawbridge Operation.
Operating Floating Equipment.
Stationery and Printing.
Other Expenses.
Clearing Wrecks.
Claims and Damages—
Damage to Property.
Damage to Live Stock on Right of Way.
Loss and Damage—Baggage.
Injuries to Persons.
Joint Facilities—
Operating Joint Yards and Terminals—Dr.
Operating Joint Yards and Terminals—Cr.
Operating Joint Tracks and Facilities—Dr.
Operating Joint Tracks and Facilities—Cr.
Total Transportation Expenses.

These are incorporated on a form, known as the Estimate of Transportation Expenses, which also contains pertinent comparisons. Assuming for example, that a meeting is being held late in January for the purpose of determining the February budget, the actual expenditures for all the items named during February, 1926, and also during both November and December, 1926, are shown. The first estimate for January, 1927, is also

shown, together with a second estimate, based on the first three weeks' actual figures, which are then available, plus an estimate for the remainder of the month.

How Budget Information Is Secured

In the 15 years since the first budget meeting, the development has been carried to such an extent that superintendents are now able to predict not only how much it will cost to operate their divisions for the next month, but also how much traffic will move and how the expense will be divided as between the various transportation accounts. The management realized long ago that it was impossible for a superintendent to exercise any great amount of control over his operating costs when he had no knowledge, or at best only a vague idea, of what those operating costs were. Accordingly, divisional accounting forces were organized in each superintendent's office, to give him currently a statistical analysis of his division.

Before the superintendent prepares his estimate of expenses, he calls upon the facts and figures at his command to enable him to make as accurate an estimate as possible of the freight to be handled over his division in the month. Since this is the basis from which all expense figures, except the fixed charges already mentioned, are computed, it must be very nearly correct if his estimate is to be accurate. For this reason, the superintendent keeps in close touch with all of the larger industries on his division and secures from his subordinates an estimate of the traffic to be shipped and received during the month. If his division handles a large percentage of through business, receiving it from one division and delivering it to another, he must confer with the superintendents of connecting divisions to secure an estimate of the through business from them. Above all, on most of the divisions of the Illinois Central, he must keep in close touch with crop conditions at certain seasons of the year, so that he may estimate accurately the number of cars of agricultural products he is to handle.

It is essential that the passenger business also be estimated and that cognizance be taken of seasonal increases in travel and special train movements. This is particularly true of the divisions between Chicago, New Orleans and the Gulf Coast, where business fluctuates with the seasons and special movements occur frequently at all seasons. For example, at this season of the year, the superintendents must anticipate the amount of increased traffic due to solid trains of perishable express; the Mardi Gras and to the racing season at New Orleans. In preparing his estimate of passenger train miles and freight train miles, the traffic department is of considerable assistance to the superintendent, by keeping him advised, upon request, of any special movements contemplated.

As soon as an estimate of traffic is arrived at, the superintendent holds a divisional staff meeting, at which his subordinate officers assist in determining how much the variable expenses will have to be increased or decreased, according to the fluctuations in traffic. From the information gleaned from all these sources, the superintendent prepares his estimate of expenses for presentation at the general monthly meeting.

The System Budget Meeting

The general budget meeting is usually held at the system general offices in Chicago about the 26th or 27th of the month and all general, division and terminal superintendents come for a two-day session. The meeting is presided over by the general manager, and, while it is intended primarily for the purpose of formulating the transportation budget, it serves other purposes as well, and is co-ordinated with maintenance of way and

maintenance of equipment budget meetings, which are held at the same time. On the first morning, the general manager reviews the estimates of the superintendents of the Western and Northern lines, while the superintendents, district engineers and roadmasters of the Southern lines and the Y. & M. V. are attending the maintenance of way expense meeting held by the engineer maintenance of way. The afternoon is devoted to a general session of all the superintendents and general superintendents in the office of the general manager, at which time pertinent operating questions of the month are discussed. The procedure is reversed on the second morning, when the general manager reviews the estimates of the superintendents of the Southern lines and the Y. & M. V., while the superintendents of the Western and Northern lines, district engineers and roadmasters attend the maintenance of way expense meeting, and later in the day, all superintendents, general superintendents and master mechanics attend the maintenance of equipment budget meeting held by the general superintendent of motive power.

Each superintendent is called upon separately to present and discuss his estimate. He must be prepared to defend his figures with facts and the comparisons already referred to furnish an excellent check. Each item of the many shown must be carefully considered before it is presented at the expense meeting, because any unusual increase or decrease is immediately apparent by means of the comparisons, and calls for an explanation by the superintendent. If any particular item of expense appears to be out of line, either on the whole system, on any particular section, or on any one division, the general manager is able to bring it to the attention of the superintendent or the superintendents concerned at these meetings.

By means of the comparison of the first and second estimates of the current month's expenses, an accurate check can be made of the accuracy of the superintendents' first estimates. When these figures vary to any appreciable extent, the superintendent is called upon to explain. However, unless some unusual and unforeseen condition has come up, the two estimates agree in almost every instance, so that in actual practice little explanation is required.

Besides the cost figures mentioned above, each superintendent reads a report, with comparisons, giving the number of accidents on his division, their cost, the amount of damage to equipment in yards, the number of head of live stock killed, divided between large stock and small stock, the price of coal and the cost of handling coal. These figures are also carefully scrutinized and explanations required, where it is deemed necessary.

If the superintendent has been able to defend his estimate of expenses successfully, it is accepted as the allowance to be given him, without formal notification; if not, the figures are revised and they become his allowance for the month.

Divisional Meetings Held

After the allowance is received, the superintendent holds another meeting at division headquarters, and allowances are given to the yardmasters, roundhouse and coal chute foremen, general foremen of the mechanical department, track and bridge and building supervisors and others. It is required that each of them keep well within the allowance and have no over-expenditures in the department under his control. For the purpose of keeping within allowances, daily records of expenses are maintained and in cases where an over-expenditure is found to exist, adjustments in forces and expenses are made to meet the condition, if possible.

By no means the least important result of this plan is

the spirit of friendly rivalry engendered among the superintendents. When one superintendent makes a good showing and, with the aid of his cost figures, explains how he did it, the other superintendents are naturally inspired to do likewise. This friendly rivalry is enhanced by a clever idea as to the seating arrangement. Each of the chairs in the general manager's office is numbered and the superintendent with the best accident record for the year, based on 1,000 freight train miles, is entitled to seat No. 1, the second best to seat No. 2, and so on.

In addition to the obvious benefits derived from this budgeting system, certain other very tangible results are obtained. The superintendent must keep every item of cost on his division well under his control constantly and nothing can escape his attention. With the means, information and incentive for reducing costs kept constantly before him, he is able to make the effort towards cost reduction at least and the usual result of this effort is that costs are reduced. Small items of expense which he might not otherwise deem important enough to bother about are shown in such a manner that their aggregate volume is impressive and calls for action. Also, the general manager is able to visualize, in a clear fashion, just what is being done, and any costs that are out of line cannot fail to be brought to his attention. He is in constant touch with even the smallest items of cost.

The superintendent is enabled to become acquainted with accounting rules and with the statistics affecting his division. Figures and statistics become real and live to him, instead of merely appearing as something that the general office worries over for unexplainable reasons. He obtains a clear idea of just what results he is accomplishing, presented to his attention in a thoroughly understandable manner. In addition, the superintendent obtains a broader idea of the system as a whole and is able to co-operate more intelligently with the superintendents of the adjacent divisions or, for that matter, with superintendents at more distant points all over the system.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 19 amounted to 960,873 cars, a decrease of over 7,000 cars as compared with the preceding week but an increase of 28,592 cars as compared with the corresponding week of last year and of 34,987 cars as compared with 1925. The increase, however, was entirely due to heavy coal loading, which amounted to 213,794 cars, or 43,881 cars more than were loaded in the corresponding week of last year. Coke, forest products and miscellaneous freight showed decreases, as compared with 1926, while grain and grain products, coal and merchandise were the only commodity

classifications to show increases over 1925. In the Central Western district the loading was less than that for 1925 but all other districts showed increases as compared with the corresponding weeks of both 1925 and 1926. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading, Week Ended Saturday, February 19, 1927

Districts	1927	1926	1925
Eastern	228,593	216,155	223,192
Allegheny	194,964	189,115	191,849
Pocahontas	56,256	53,496	40,919
Southern	155,905	154,438	147,882
Northwestern	116,667	116,439	116,540
Centralwestern	133,984	128,782	137,507
Southwestern	74,514	73,856	67,997
Total Western Districts	325,155	319,077	322,044
Total all roads	960,873	932,281	925,886
Commodities			
Grain and grain products	43,453	42,928	41,188
Live stock	27,542	27,054	30,874
Coal	213,794	169,913	165,616
Coke	12,361	17,627	13,299
Forest products	68,887	77,451	83,079
Ore	10,481	10,006	11,004
Misc. L. C. L.	257,882	255,822	254,178
Miscellaneous	326,473	331,480	326,646
February 12	968,317	917,625	903,935
February 5	970,892	914,491	929,130
January 29	950,969	925,696	897,368
January 22	942,587	921,643	924,291
Cumulative total, 8 weeks	7,424,831	7,192,653	7,215,900

The freight car surplus for the period ended February 15 averaged 259,556 cars, including 140,957 box cars, 68,373 coal cars, 26,615 stock cars and 12,528 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended February 19 dropped from 61,354 cars to 59,956 cars as a result of the severe weather prevailing throughout the Dominion. Compared with the same week last year there was an increase of 3,856 cars.

Commodities	Total for Canada			Cumulative totals to date	
	Feb. 19, 1927	Feb. 12, 1927	Feb. 20, 1926	1927	1926
Grain and grain products	6,619	8,290	6,520	60,696	54,263
Live stock	1,779	1,913	1,742	14,417	14,106
Coal	6,979	6,276	5,055	47,844	37,963
Coke	365	388	781	2,777	3,852
Lumber	3,246	3,178	3,561	19,847	20,892
Pulpwood	6,507	6,483	4,418	37,688	28,437
Pulp and paper	2,060	2,358	2,705	15,333	18,806
Other forest products	3,765	3,774	3,840	23,078	24,624
Ore	1,476	1,497	1,551	9,490	10,091
Merchandise, L. C. L.	15,961	15,700	14,590	107,662	99,509
Miscellaneous	11,199	11,497	11,337	75,800	73,336
Total cars loaded	59,956	61,354	56,100	414,632	385,879
Total cars received from connections	40,793	40,538	36,013	257,365	243,483



De Luxe Paris-Warsaw-Riga Express near Hanover, Germany



Railroads Are Interested in the Conservation of Forests.

What the Railways Are Doing to Promote Forest Conservation

*A description of the practices of the New Haven in extending the life of the timber it uses**

By N. M. Rice

Vice-president, Purchasing and Stores, New York New Haven & Hartford

WHEN we speak of forestry conservation and its relation to the railroad, we mean those activities, which, blended together, resolve themselves into the fundamental idea of forest perpetuation by a wise use of its products. As a tangible part of the forestry movement, the New Haven offers a program of utilization with wood preservation as its most prominent feature. This, with the standardization of lumber and timber, together with fire protection, are the points of contact with the conservation policy.

Railroads were originally attracted to the treating program when timber saving by the process was not so much a factor of conserving the supply of timber, as that of forestalling decay. As timber became scarce, the practice became more and more identified with conservation. As railroads are the leaders in preservation, treating 90 per cent of all the timber treated, they are leaders in conservation since for every stick they treat, they leave two or three in the forest to grow.

The railroads are in a particularly good position to initiate this practice for their timber needs are generally furnished in rough standard sizes. Since they consume at least one-fifth of the nation's annual timber cut, the proportional saving to them by preservative processes is too great to be ignored.

Good Preservation Practice

Good practice in timber preservation embraces not only the process itself, but the preparation and handling of the timber from the time it is cut. First, it designates

the time of year in which the timber is to be felled. This restriction is of marked importance in the case of New England hardwoods, beech particularly, which develop fungus decay in a few weeks, if cut in the growing season and let lie. We restrict such cutting to the fall and winter months when it will not lead to the dislocation of the lumbermen's organization.

Dry ties of equal moisture content are requisites. Ties are bought from the small lumbermen of the territory adjacent to our lines. We receive these ties green by having the producer load his stock after the company's inspection, paying him on the unloading tally at the creosoting yard. The green tie coming into the yard means that the seasoned stock will all be of the same age and precludes the possibility of decay from bad handling elsewhere. No tie is allowed to decay in the yard when received as it is stacked with ample air space around each stick. Protection against checking is given with "S" irons. The timber is allowed a length of time to season as determined for each class of which we have five; namely, hardwood, common oak, hemlock, yellow pine and Douglas fir. The seasoning time varies from six months to one year.

The timber is taken up by company inspectors. The inspectors are given to understand that we do not wish to discard entirely a piece of timber because of some local defect, which will impair its strength as a whole only in a slight degree, while disregarding in another an innocent appearing blemish, but which may indicate decay in a vital spot. The inspectors are expected to bear in mind that the rejection of a good tie is as much an economic sin as the acceptance of a poor stick. They are expected

*From an address before the joint meeting of the American Forestry Association and the Connecticut Forestry Association at the Lawn Club, New Haven, Conn.

to appraise the relative importance of all factors necessary for the determination of value fair to all.

Native timber is small, and in order to prolong its use small ties are made by sawing the top log of the tree for the smallest ties that justify treatment. The practice of cutting the younger growth for the sake of a questionable stick is discouraged by the acceptance of only a small percentage of the lumberman's output in side track ties. It is our contention that such practice is attended with loss; it does not pay to cut down a tree to make one tie.

The practice of adzing and boring ties and dapping bridge timbers is followed. The adzing affords a base for the rail, preventing rail fractures, but this feature is over-shadowed by the boring, which is important because the ties of native species take the preservative longitudinally, and while this is great at the end, it is not enough to reach to the rail base where the most severe wear takes place. The borings make the section of the tie under the rail base susceptible to longitudinal and radial penetration both ways from the holes. At the same time the hole will have untorn fibers, which grip the spikes with increased power.

An evil avoided since creosoting began is the framing of timber after treatment. Framed creosoted stock is used principally in the shape of bridge timbers. To manufacture them in finished form a dapping mill was installed where stock for all parts of the system is shaped by machinery according to blueprints. Each piece is numbered, with the stencil placed on the end of the stock, and each job is loaded by itself and shipped so that every piece can be put in place without breaking the creosoted surface.

The precision and efficiency of framing at the mill is in contrast to the old crude way of carrying on the operation by hand at the bridge site. This mill method has the further advantage of decreased cost.

All timber on the New Haven is treated by the "Improved Lowry" process, with a final net retention of eight lb. of oil to the cubic foot. Creosote is the preservative used and since it is more toxic than necessary to protect the timber during a period of time determined by the mechanical wear, 30 per cent of tar is added. This cheapens it and at the same time forms a waterproofing.

As a further precaution, after ties are treated, a heavy tie plate is used under the base of the rail. Ties treated 15 to 20 years ago are being taken out of the main line and used in yards. These ties did not rot, but were abraded by mechanical wear until unable to withstand heavy traffic. The fact that they can still be used war-

rants better protection for ties under present day traffic conditions.

Big Savings from Treatment

Tie replacements in the past have amounted to 2,000,000 ties per year on an eight-year cycle (the life of chestnut or white oak). Assuming a life of 16 years for treated material, it is calculated that after 10 years the yearly requirements on the New Haven will have been cut to 1,000,000 ties. This will be the normal output of the treating plant.

Tie disbursements on the New Haven during the last six years have been over \$16,000,000, practically all of which was spent in New England. During the first year, 1920, up to and through 1924, the expenditures ran from \$2,100,000 to \$2,800,000 a year. In 1925, it dropped to \$1,500,000 and in 1926 it was \$1,700,000. The estimate for 1927 is \$1,400,000.

The cost of an average tie in New England is \$1.12 f.o.b. line of road, and the cost of creosoting \$0.50, which with miscellaneous charges bring the total up to \$1.70. It takes from 5 to 25 yr. to gage accurately the economy of timber preservation, but the saving is already apparent on the New Haven for a great percentage of the ties put down in 1922 would, if untreated, be out now. New ties would have been purchased and new installations and maintenance financed. Native non-durable ties will not average more than four-years' life.

Until the end of the period representing the life of untreated wood, plus an additional fraction of that period to cover the cost of treatment, the only saving to the railroad is the item of maintenance. After this period, the saving is represented by prolonged life of timber, plus the annual cost of maintenance and replacement when untreated ties are used. The initial cost would seem to be justified, for the intense ravages of fungus decay in our native woods sets in motion an increasing circle of expenditures. Indeed, the cost of renewal today is so large that some engineering authorities assert that one year's added service warrants the extra cost. Success is assured, for all the ties treated and placed in 1922 and since are reported in satisfactory condition.

Standardization Finds Roads Progressive

Railroads were long ago won over to the principles of standardization of equipment so that the steps taken to apply the same principles to forest products found them responsive. Tie sizes and grades were standardized eight years ago.

The idea in all standardizing is the elimination of



The Railroads Are Leaders in the Treating of Timber

waste. In the beginning, there were no grades. Lumber was lumber. As it became scarce, local grading rules sprang up. Even within the same regions there were disagreements as to the interpretation of grades and rules. In the hardwoods, for instance, one association was formed which advocated good face inspection; another association of manufacturers insisted on inspection from the poorer side of the board. To cap the climax manufacturers, who liked neither, made their own rules, even publishing them in book form. Neither grades nor names corresponded.

It is in the soft wood field that the railroads are chiefly interested. Here grades and sizes grew in number and confusion. All soft woods in this country no matter what the species, can be classified in grades so that regardless of where we get the stock, whether from the South, or the West, the grade will be the same.

It is more difficult to agree on sizes. Dressed and matched lumber is standard on all roads. Other lumber for repairs is not. But there is a fine opportunity to combat the trend toward thinner boards and smaller dimensions. A railroad cannot take a 1½-in. plank when 2 in. is specified, nor can it take a board S1S to ¾ in. The minimum is 13/16-in. Lumber must be saved by some means other than sacrificing strength and safety.

In our specifications, the number of sizes have been measurably reduced and as requirements are anticipated the lumberman is enabled to make his operations more flexible, to get the most out of his manufacturing and his standing timber and to spread the cost of conversion more equitably over all grades.

The ever-growing difficulty of obtaining kinds of timber, which were considered indispensable for their respective uses promotes the search to find out to what extent other woods can be used. As long as the wood suits the purpose, it makes no difference what species of wood it is. To this end, we labor to dispel old prejudices. Lumber standardization helps us. The best of the long leaf pine of the South may be stronger than Douglas fir, but genuine long leaf is disappearing and that on the market will, on the whole, not surpass the fir of the Pacific coast. Individual lots of fir may even excel.

The preservative process relieves engineers from limiting their specifications to heart wood and now the de-spiced sap is preferred for it is the part of the stick that takes treatment naturally. In fact, the sap is now to be preferred for it comes from the part of the tree with the fewer knots and does not have the shake of the heart.

Lumber Future for New England

The New Haven has felt that to determine its forest products policy, definite knowledge should be acquired of the timber supply on its lines, of the kinds suitable for its need, its location and possibilities. It made such a survey a year ago with the aid of its producers.

From the tabulation of returns of estimates totaling 15,000,000 ties, the greatest present source of supply tributary to our line is in western Massachusetts with 6,500,000 ties, the rest of the state having 1,000,000; Connecticut, 5,775,000; Rhode Island, 1,475,000; and New York 306,000. Massachusetts has 50 per cent of the available supply, Connecticut 38 per cent, Rhode Island 10 per cent and New York 2 per cent. From 1920 to 1926, Connecticut furnished nearly 60 per cent of the total supply but the use of hardwoods has increased Massachusetts' share from 22 per cent in 1922 to 32 per cent in 1926.

The forest lands of Connecticut, Massachusetts, Rhode Island and the part of New York drawn on for the road's supplies, comprise an area of at least 4,000,000 acres. The forest lands in Connecticut alone comprise approxi-

mately 1,500,000 acres or half the state. This large area is surely enough to supply ties for the road perpetually, if properly handled.

During the last few years, the percentage of the total cut in Connecticut going into ties has been high. In 1924 it was 85 per cent. It seems that the proportion going to different kinds of utilization will remain, as in the past, with at least 50 per cent of it going to the railroad.

Local Buying a Duty of Railroads

The New Haven gives the local lumbermen as much of its business as they are geared up to take. Ties of excellent quality for creosoting, namely, southern pine, ties that will last at least 16 years, can be laid down on the line of road for prices lower than that of native supply, but the railroad feels that it is its first duty, when the conditions are reasonably comparable, to support the community interests of New England.

It is but natural that the road should desire to continue procuring its tie and timber needs on its own lines. Forest growth seems destined to be permanent, especially on some of the branches that have now little traffic. A permanent forest policy would rehabilitate territory nearby these and revive industry, thereby benefiting freight and passenger business.



Visit...this next-door Normandy!

Plenty to do and see, at Quebec! Such a different place—as old, so romantic, so picturesque! Down from the Chateau Frontenac, stroll through the streets of the town. Explore its shops, and brush up your French. Take a cabriolet on out for a jaunt into the country. You'll see wayside shrines, thatched roofs, road signs in celtic languages. Can this be America, or 17th Century Normandy? A pleasant hour on the St. Lawrence takes you to Isle d'Orleans, just as it was centuries ago. Visit the Anne de Brequeville, place of miracles. Go out to

Montmorency for ye income game of golf. Revel in a country as rich in beauty as in history—in music at each day's end to this cosmopolitan good hotel. Here, are comfortable rooms, spacious lounges, excellent cuisine, and deft service. Here, is hospitality. Come this summer, stay awhile, and know the power of this castle of ours. Reservations at Canadian Pacific, 344 Madison Avenue at 64th Street, New York, 71 East Jackson Boulevard, Chicago, 405 Boylston Street, Boston, or, Chateau Frontenac, Quebec, Canada.

CHATEAU FRONTENAC
Bienvenue à Québec.

Printed in U.S.A.

Railroad Advertisement Which Won Prize

\$1,000 and a Certificate "for the Advertisement Most Effective in Both Pictorial Illustration and Text" Was the Harvard (Edward W. Bok) Advertising Award to the Federal Advertising Agency, Inc., New York, for the Above C. P. R. Advertisement.

First Hundred Years of the B. & O.

*Centenary of charter grant
celebrated by large party
at banquet and pageant*

THE one hundredth anniversary of the granting by the Maryland legislature of the charter of the Baltimore & Ohio Railroad Company, was celebrated by a big dinner party and pageant given by the railroad at the Lyric Theatre in Baltimore on Monday evening, February 28.

This dinner was but the first event in the Baltimore & Ohio's observance of its centenary. Extensive plans for a pageant and transportation exhibit to be held in September, have been made, to which President Coolidge has been invited.

Invitations to the dinner on Monday night were extended to important railway and business men throughout the country, as well as to officers and numerous employees of the Baltimore & Ohio and citizens of Baltimore, and was attended by about 1800 persons. It being impossible to seat all of them in the theatre, the remainder were entertained at dinner at the Belvedere Hotel, and later went to the theatre to hear the addresses and witness the pageant.

Daniel Willard, president of the Baltimore & Ohio, presided. Governor Ritchie of Maryland was expected to speak, but was ill. He sent a telegram to Mr. Willard



Daniel Willard Shaking Hands With "Charles Carroll."

saying, "I have looked forward to this occasion as one of the greatest in the history of Maryland and nothing would keep me away but illness. I congratulate you and the present management upon the full and rich measure of efficiency, liberalism and broad public spirit which are today such notable assets of the Baltimore & Ohio Railroad, and which are the source of so much pride to the people of Maryland." Mayor Jackson of Baltimore made a brief address, and the principal address was made by Newton D. Baker, former secretary of war, who is a director of the railroad.

Elaborate Pageant

Planned for September

Mr. Willard, in announcing the pageant and transportation exhibition to be given on the Baltimore & Ohio grounds at Halethorpe in September, expressed a hope that President Coolidge would accept the invitation to be present at the opening ceremonies. He stated it is the intention to provide a suitable track, probably circular in arrangement, around which a historic pageant may be moved.

On this there will be twenty-five or thirty floats, some of which will be reproductions of those which were moved through the city of Baltimore on July 4, 1828, when the corner stone of the railroad was laid by Charles Carroll of Carrollton, and also reproductions of early types of locomotives and other transportation agencies de-



Laying the First Stone. The Venerable Charles Carroll Holds the Spade

veloped in this and other countries. The "Tom Thumb," Peter Cooper's little locomotive, which was first tried on the Baltimore & Ohio, and which participated in a famous and losing race with a gray horse on August 28, 1830, disappeared years ago, nobody knows when or how. Mr. Willard stated, however,



Closing the Track at Roseby's Park

that enough information had been secured to duplicate the original engine in the Mount Clare shops. This reproduction of the little engine was on exhibition at the Mount Royal station this week, and Mr. Willard stated that in September it will lead a parade of twenty or thirty locomotives moving under their own steam and representing all the distinctive types that have been used on the Baltimore & Ohio in its history, terminating with the Lord Baltimore, which was built in the Mount Clare shops about a year ago and is now in passenger service over the mountains. It is probable there will also be some modern European locomotives.

"It has frequently been stated," said Mr. Willard, "that the story of the growth and development of the American railroad is to be found in the long series of annual reports of the Baltimore & Ohio Company, and while it is not within my province as presiding officer on this occasion to review that history, I may perhaps be permitted to say that the Baltimore & Ohio at the beginning of its second century is stronger, both physically and financially, than ever before. The results of its operations in 1926 were the most satisfactory in its entire history."

Newton D. Baker Reviews History

Former Secretary of War Baker began his address by reviewing the early history of the development of internal improvements in the United States.

"In the early part of the nineteenth century," he said, "there were three important commercial centers on the Atlantic Coast—New York, Philadelphia and Baltimore. They were the great commercial rivals, and after each had established its supremacy in its own territory the question arose as to which of the three should capture the West.

"De Witt Clinton's plan for this conquest lay in the building of the Erie Canal, which connected New York City, through the Hudson, with the Great Lakes. Philadelphia's plan was first a system of roads, then the Susquehanna Canal, and Baltimore's plan, at the outset, was to rely upon the Chesapeake and Ohio Canal, although its extreme terminus was at Georgetown, and this made Baltimore a lame competitor in the trade race.

"In 1827 the Erie Canal had been open two years for its full length of 352 miles, and so amazing was its success that, although it cost more than \$7,000,000 to build, by 1836 it had turned into the treasury of the state receipts in excess of its entire cost.

"Baltimore saw its trade slipping away, and New York easily distancing all rivals in the western commerce. Meanwhile the Chesapeake and Ohio Canal was progressing but slowly, and seemed to have but little prospect of successful prosecution.

"No real dependence could be put either in the building of traffic roads. The maintenance of long stretches



One of the First Steam Trains on the B. & O.

of roads through the mountains, and particularly through long stretches of wholly uninhabited country, was impossible, and the transportation of bulk freight east from the coast or west from beyond the Alleghenies over such roads as men then knew how to build could not compete with the Erie Canal."

Inspired by the desire to save Baltimore's trade, Mr.

Baker said, the business men of the city conceived the idea of building a railroad for horse-drawn cars. He told of the meetings held, the granting of the charter and the laying of the cornerstone. He recalled the race between the first steam locomotive used on the Baltimore & Ohio and a horse. The horse won. From 1830 onward railroads made rapid progress. He reviewed the early history of regulation and said:

Growing Public Confidence in Railroads

"Thus began the present period in which popular hostility and suspicion are gradually giving way to confidence in the management of the railroads of the country, while the management of the railroads, on the other hand, is daily realizing more and more effectively that they manage public-service corporations with a high national obligation and that their true prosperity lies in making the service they render to shippers and travelers the first object of their policy.

"We have not yet lived through all the grief there is on this subject. The extreme possibility of nationalization of the railroads seems to have lost ground, chiefly by reason of the hope that by a statesmanlike treatment of the problem the Interstate Commerce Commission may be able to retain private ownership and private initiative while still safeguarding completely the public interest.

"It does, however, seem fairly clear that with the dependence which the country has upon continuity and efficiency of railroad operation the interstate character of these agencies must finally be recognized and such unifications and consolidations made as will preserve competition in service and insure adequacy of service,

third and last alternative would be government ownership, and while that might solve some problems which at present seem difficult it would unquestionably produce a vast array of new difficulties against which no democracy has as yet measured its strength.

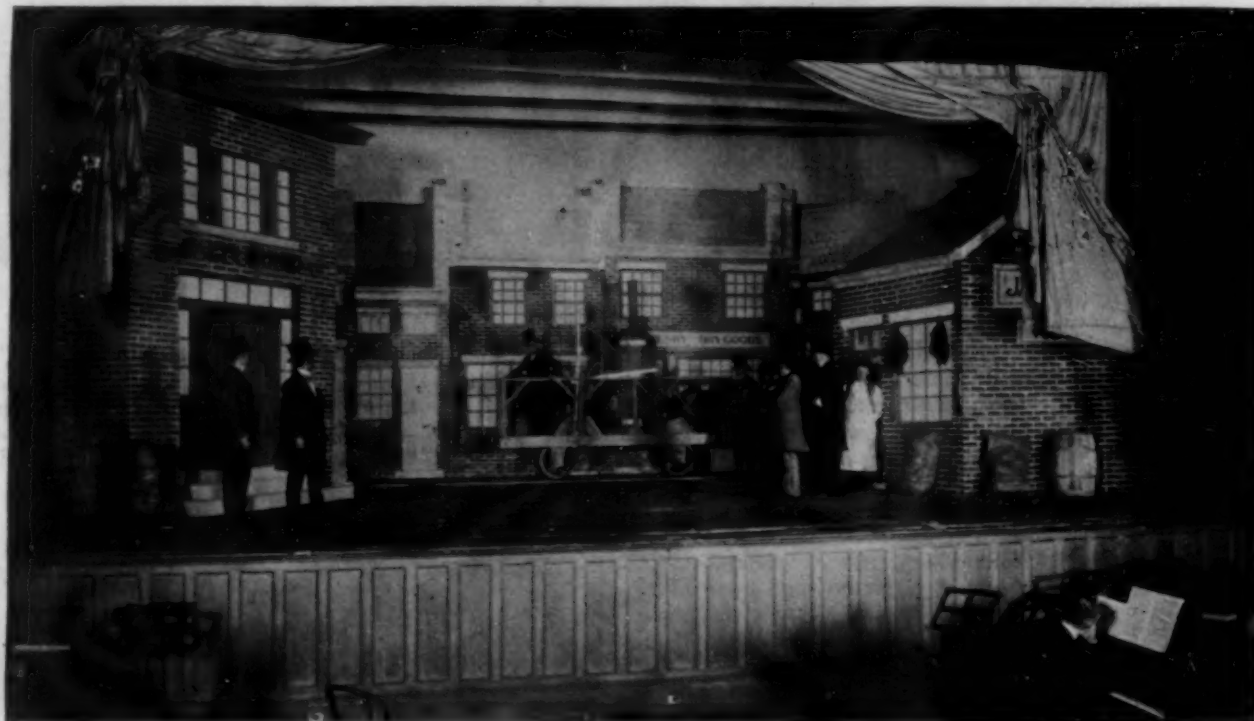
Says Stronger Roads Must Absorb Weaker

"If the present process of public regulation is to succeed, there will have to be an absorption of the weaker



Centenary Medal of the Baltimore & Ohio

roads by the stronger ones in order that feeders may be maintained and the service upon which the vast rural sections of the country depend continue. The rate structure will have to be made with a recognition of the fact that the strong roads with excess earnings are carrying, in the general public interest, the burden of deficient revenues up on feeder lines. The success of this experiment is rendered more hopeful by the wide distribution



Peter Cooper's "Tom Thumb" Shown on the Stage

while at the same time restricting capital expansion and regulating rates to insure a fair return.

"There are three possible treatments of the railroad problem: First, unrestricted private control. This has been tried and it failed. Second, progressive regulation in the public interest. This is now being tried with a fair promise of success. Should it, however, fail, the

of the securities of American railroads. Regulation by the Interstate Commerce Commission has given a stability of value to the capital invested in railroads which it never before had.

"The bonds and stocks of the companies have, therefore, become prudent investments for small investors, and the assurance of rates which will make a fair return

possible—although it is not guaranteed by the Esch-Cummins act—is implicit in the duties imposed upon the commission. Under this policy, the railroads of the country can rely upon satisfied and secure stockholders and bondholders and upon the good will of the shippers and travelers who recognize the constantly improving service as an evidence of efficiency and fair dealing.

"It seems to me that the railroads have entered upon a very favorable era in their history and that the great talents of the men now having the major railroad enterprises of the country are a sure sign that this agency, upon which so much depends, has at last left the field of local politics, turned its back upon the destructive practices of stock speculation, and has become a dignified constituent in the very industrial fiber of the country itself."

Pageant Presented on Stage of Theatre

The pageant which was presented on the stage of the theatre following the addresses, depicted various episodes in the early history of the Baltimore & Ohio. The first was the meeting of citizens at the home of George Brown

the parts in it were taken by officers and employees of the railway. Edward Hungerford, centenary director, had general charge of the making and carrying out of the program. Most of the music was furnished by the Baltimore & Ohio Women's Music Club and the Baltimore & Ohio Glee Club. Philip E. Thomas, the first president of the railroad, was impersonated by Barry Fenton and Charles Carroll of Carrollton by O. K. Quivey.

A Short Chronology

In a very beautiful program, which was distributed to the guests, the following short chronology of the Baltimore and Ohio was given:

Its charter was granted on February 28, 1827. The company was organized with a directorate of twelve on April 24, 1827. The first stone was laid on July 4, 1828. Passenger train service, with horses as motive power, began between Baltimore and Ellicott's Mills on May 24, 1830. Handling of freight for revenue was begun on August 20, 1830. The operation of the steam locomotive "Tom Thumb" was begun on August 30, 1830. The Baltimore & Ohio, on January 4, 1831, offered a prize of four thousand dollars for the best American-built steam locomotive weighing not over three and one-half tons and capable of handling fifteen tons at the rate



A Modern Baltimore & Ohio Locomotive

in Baltimore, when it was decided to seek a charter for a railroad. The meeting was interrupted by two men who were uninvited and who called to tell the projectors of the railroad that they were "stark mad."

The second episode was the laying of the first stone of the railroad at Mount Clare, Baltimore. Charles Carroll of Carrollton, last signer of the Declaration of Independence, who was more than ninety years old, concluded the ceremonies with his famous and historic statement, "I consider this among the most important acts of my life, second only to the signing of the Declaration of Independence, if second even to that."

The third episode was entitled "The Passing of the Horse" and related to the famous race between Peter Cooper's "Tom Thumb" engine and a car drawn on rails by a horse. The victory of the horse caused Peter Cooper to be subjected to much ridicule by the village wiseacres, but at the conclusion of the episode his dream was realized in a great modern Baltimore & Ohio locomotive.

The pageant proved to be both beautiful and entertaining. The blank verse for it was written by Margaret Talbott Stevens, an employee of the Baltimore & Ohio; in fact, the entire performance was arranged and most of

of fifteen miles an hour. This was won by the "York," built by Phineas Davis of York, Pennsylvania. The road was open from Baltimore to Washington with a large public ceremony in July, 1835. It reached the Ohio at Weeling, so fulfilling its charter, on January 1, 1853.



New York City & Northern (now Putnam Division, N. Y. C.) in the Early Days

Wabash Stock Popular

Interest apparently attracted chiefly because of merger possibilities—Earnings continue improvement

WABASH common is another of the non-dividend paying railroad stocks that as a group have attracted considerable popularity in the stock market since the sudden rise in the value of Wheeling & Lake Erie stocks showed the prospective effect of merger possibilities. Several of the stocks in this group have declined in price and likewise in popularity since the orgy of excitement attendant upon the near corner in Wheeling & Lake Erie ceased but this has not been true of Wabash. During the last week of February the amount of attention directed at the common stock of this company was so great as to result in a turnover on the New York Stock Exchange of 336,000 shares. This was equivalent to nearly one-half the total number of shares outstanding and the number of sales was exceeded by only one other issue, namely General Motors. Sales of Wabash common for the past several weeks have totaled as follows:

Week ended	Sales
February 4	255,100
11	436,800
18	594,000
25	336,000

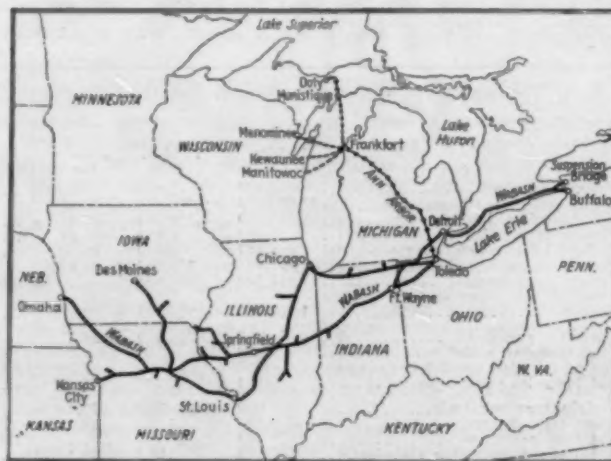
During the week ended February 26, the stock rose $5\frac{1}{2}$ points in price and reached at 75 the highest price since its issuance when the company was re-organized in 1915. During the present week, however, it has since declined to below 70. At one time this year—on January 4—the price was only $40\frac{1}{2}$. Wabash preferred A stock, which pays 5 per cent dividends, has moved upward in sympathy. It is now selling at 92, has been as high as 75, and during the last week in February rose $3\frac{1}{4}$ points.

At 75 Wabash common was selling at a rather high price for a non-dividend paying stock. There are several explanations plausible enough to merit analysis. These include among others, merger possibilities, markedly improved earnings and a possibly somewhat belated appreciation of the position in which Wabash now stands with reference to traffic considerations in trunk line territory.

Merger Possibilities

The merger possibilities of Wabash have been making a periodical appeal to the stock market ever since L. F. Loree, president of the Delaware & Hudson announced his dissent from the so-called three-system plan of allocating the smaller roads in trunk line territory, with which plan the Pennsylvania also disagreed. To give a practical touch to his dissent, Mr. Loree infor-

mally presented to the Interstate Commerce Commission a plan for a new fifth trunk-line system which would have the Wabash more or less as a nucleus and include such carriers as the Delaware & Hudson, the Lehigh Valley or the Lackawanna, the Wheeling & Lake Erie, the Pittsburgh & West Virginia, Mr. Loree's proposed New York, Pittsburgh & Chicago, the Ann Arbor, the Minneapolis & St. Louis, etc. Mr. Loree has since put this plan in effect to the extent that the Wabash has acquired the Ann Arbor and the Delaware & Hudson has attempted to lease the Buffalo, Rochester & Pittsburgh, which attempt, however, has proved unsuccessful. He is also said to have acquired a large interest in Lehigh



The Wabash and the Ann Arbor

Valley but rumors to that effect have not been confirmed.

Mr. Loree's plan has, of course, been cut into as a result of the acquisition of a majority interest in Wheeling & Lake Erie by the proponents of the three-trunk-line system, the New York Central, the Baltimore & Ohio and the Nickel Plate. This, however, instead of upsetting confidence in the feasibility of the Loree fifth trunk-line system and therefore in merger possibilities of Wabash, has done the opposite. Presumably this is because of the natural excitement that surrounds a threatened contest. The observers believe that when Mr. Loree saw the Wheeling & Lake Erie—one of the key roads of his proposed system—taken away from him, he was chagrined and could be expected to take

Table I—Wabash Operating Results, Selected Items, 1916 to 1926

Year	Mileage	Revenue ton-miles	Revenue passenger-miles	Rev. per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Net charges for additions and betterments
1916	2,519	4,440,861,000	364,775,000	.6217	\$37,721,104	\$24,874,417	\$12,846,687	65.94	.....	\$5,390,908	.....
1917	2,519	4,785,375,000	388,460,000	.6132	40,471,999	28,468,896	12,003,103	70.34	.....	4,227,105	.....
1918	2,513	4,615,817,000	399,154,000	.7474	48,246,411	40,223,947	8,022,464	83.37	\$3,714,172	2,635,285	.....
1919	2,476	4,027,016,000	370,888,000	.8754	48,847,086	44,587,030	4,260,056	91.28	864,445	2,372,870	.....
1920	2,473	4,566,144,000	371,437,000	.9488	59,982,280	58,859,395	1,122,887	98.13	5,491,512	1,983,943	.....
1921	2,473	3,888,949,000	294,216,000	1.1748	59,217,692	50,506,169	8,711,523	85.29	3,863,340	1,281,361	.....
1922	2,473	3,930,792,000	269,830,000	1.1171	57,662,496	48,041,297	9,621,199	83.31	4,107,421	1,210,388	.....
1923	2,477	4,673,212,000	294,369,000	1.1063	66,617,636	52,033,495	14,584,142	78.11	8,941,275	5,410,874	.....
1924	2,490	4,920,974,000	284,539,000	1.0475	65,780,929	50,298,418	15,482,512	76.46	9,347,780	5,474,949	.....
1925	2,524	5,333,547,000	297,204,000	1.0572	69,910,301	51,080,424	18,829,877	73.07	12,252,515	7,946,438	.....
1926	2,524	.....	.....	.....	71,693,341	52,465,680	19,227,661	73.2	12,562,083	8,217,487	.....

Standard return for operations during federal control or average net railway operating income for three years ended June 30, 1917, \$5,826,810.

some other means or steps toward protecting his interest.

What these observers said was given some point by Mr. Loree's belated attempt to protect his proposed lease of the Buffalo, Rochester & Pittsburgh in the form of the acquisition of trackage rights over the Pennsylvania between DuBois, Pa., and Buttonwood. The purpose of this step was to effect a connection between the Delaware & Hudson and the Buffalo, Rochester & Pittsburgh and to meet a criticism of an Interstate Commerce Commission examiner. Wall Street, however, also saw in the move a joining of interest by Mr. Loree and the Pennsylvania and everybody is now waiting to see what is going to happen next. Because of the relation of events this seemed to be having a favorable effect on the price of Wabash stock. At this writing it is too early to see the effect of the refusal of the Buffalo, Rochester & Pittsburgh directors to extend Mr. Loree's option covering the lease of that property.

Earnings

In 1925 the Wabash reported a remarkable improvement in its earnings over any previous year. Thus, whereas in 1924, the best year up to that time, net income after interest and other charges was equivalent

cent preferred B is also non-cumulative. It is convertible into one-half preferred A and one-half common and at the end of 1925 totaled only \$2,517,742. It will receive its first dividend on April 1, this disbursement having been declared on Wednesday of this week.

The Wabash mileage totals 2,524. It controls the Ann Arbor, an additional 293 miles, which it acquired early in 1925, by ownership of a majority of the capital stock. The Wabash lines extend from Buffalo, Detroit and Toledo to Chicago, St. Louis, Kansas City and Omaha, thus making it the only road in the eastern district that reaches Kansas City or Omaha over its own rails. The road's peculiar advantage comes in the fact that its line from the Niagara Frontier to Kansas City avoids the congested terminals at both St. Louis and Chicago while at the same time there are lines into both of these important traffic centers from each direction. With the Lackawanna the Wabash is the short line between Chicago and New York. Its lines between Chicago and St. Louis and between St. Louis and Kansas City are of about the same length as the Alton. The Kansas City line to the east is slightly longer than the Alton-Pennsylvania route but benefits because it avoids terminal congestion at St. Louis. The acquisition of the Ann Arbor with its car ferry routes across Lake Michigan supplies a traffic route to the Northwest avoiding Chicago.

The location of the Wabash has given that road a favored place in fast freight service, especially from Kansas City, and for many years it has handled a large share of the eastbound packing house products out of that city. The road has been favored also by the phenomenal growth of the automobile industry at Detroit. An outstanding feature of industry today is its dependence upon fast freight service. This and the Wabash's apparent ability to supply that service may explain the great increase in the road's traffic in recent years. Thus, in 1925, as compared with 1916, the roads of the eastern district as a whole had an increase in their revenue ton-miles of 1.1 per cent whereas the Wabash had an increase of 17.6 per cent. The increase in the case of Wabash tonnage of manufactured and miscellaneous products was 85 per cent. Revenue ton-miles figures for 1926 are not yet available. The net ton-mile figures (including both revenue and non-revenue freight) now available for the first 11 months of the year show in a comparison with 1920, an increase for the roads in the Great Lakes region of 4.7 per cent for the eastern district of 3 per cent but for the Wabash 23.4 per cent.

To make the record complete it should be added that in 1926 the Wabash did not improve its position very greatly over 1925. Its increase in net ton-miles was 4.5 per cent, while the increase in the Great Lakes region was 6.7 per cent and in the Eastern district 7.9 per cent. In general, it will appear from the more complete record for the years 1916 to 1926 in Table I that it was in 1925 as compared with 1924 that the road made its great advance to its new greater position of strength. It will be noted that the 1926 operating ratio of 73.2 was not quite as good as the 1925 ratio of 73.07 but that otherwise it was the best figure reported since 1917. The 1926 net operating income of \$12,562,083 compared with \$12,252,515 in 1925 but it compared with the standard return or average annual net operating income for the three years ended June 30, 1917, of \$5,826,810, thereby showing an increase of 115 per cent.

With its great increase in traffic in the past two or three years the Wabash has shown a remarkable improvement in its operating efficiency indicating that

TABLE II—COMPARISON OF SELECTED FREIGHT OPERATING STATISTICS

	11 Mos. 1926	11 Mos. 1920	Per cent of change	
			Inc.	Dec.
Mileage operated	2,497	2,418	3.2	...
Gross ton-miles (thousands).....	13,823,535	9,306,698	48.6	...
Net ton-miles (thousands).....	5,583,039	4,523,080	23.4	...
Freight train-miles (thousands).....	8,108	6,452	25.7	...
Freight locomotive-miles (thousands).....	8,561	6,713	27.6	...
Freight car-miles (thousands).....	371,483	230,697	61.1	...
Freight train-hours	557,540	561,918	...	0.6
Tons of coal consumed by freight locos.	1,000,369	910,781	9.9	...
Car-miles per day.....	42.7	26.9	58.8	...
Net tons per loaded car.....	22.2	25.3	...	11.8
Per cent loaded to total car-miles...	67.6	77.9	...	10.3
Net ton-miles per car day.....	641	528	21.4	...
Freight cars per train.....	46.8	36.8	27.1	...
Gross tons per train.....	1,705	1,442	18.1	...
Net tons per train.....	689	701	...	1.7
Train speed, miles per train-hour...	14.5	11.5	26.1	...
Gross ton-miles per train-hour.....	24,794	16,562	49.6	...
Net ton-miles per train-hour.....	10,014	8,049	24.2	...
Lb. coal per 1,000 gross ton-miles...	129	...	...	...
Loco-miles per loco-day.....	67.9	59.7	13.7	...
Per cent freight locos. unserviceable	16.0	22.1	...	6.1
Per cent freight cars unserviceable.	2.7	9.1	...	6.4

after allowance for preferred dividends to \$2.70 a share on the common stock, in 1925 net equalled \$5.75 per share of the combined profit-sharing preferred A and common stock. In 1926 the road did slightly better than in 1925, its recently issued preliminary earnings statement showing per share earnings on the common and profit sharing preferred A of \$5.95. Whether earnings of this size are sufficient—other things being equal—to justify a price of 75 for the stock might be a question.

The present Wabash company dates back to November, 1915, when the company came through a drastic reorganization that reduced funded debt by \$17,201,000 and fixed interest charges by \$2,611,000. The road has since had a conservative capitalization. The balance sheet as of December 31, 1925, shows funded debt inclusive of equipment trust certificates totaling \$95,000,000. The stock outstanding is in three issues and totals \$138,000,000, giving a proportion of funded debt to total capitalization of only 40 per cent. The stock includes the profit sharing preferred A totaling \$69,115,843. This issue has been paying 5 per cent dividends since May, 1925. It is non-cumulative and is entitled to receive additional dividends at such rate as may be paid in excess of 5 per cent on the common. The 5 per

besides getting the business the road is also handling it efficiently. The record is given in Table II in which comparison is made between the first 11 months of 1926 and the same period of 1920. It is to be noted that in 1926 as compared with 1920 the Wabash moved 48.6 per cent more gross ton-miles with only 25.7 per cent more freight train-miles, with only 9.9 per cent more fuel and with 0.6 per cent less freight train-hours. As a result of moving its freight trains at an average speed of 14.5 miles per train-hour—one of the highest figures for any road in the country—combined with an increase in its gross train-load of 18.1 per cent, it has effected an increase since 1920 of no less than 49.6 per cent in its gross ton-miles per train-hour. Another interesting figure in Table II is the low percentage of bad order cars—only 2.7. The car-miles per day in 1926—42.7—were exceeded by only four roads in the eastern district, three being smaller bridge lines and the other, with a figure of 44.3, being the Nickel Plate.

There was a time when it was said that the Wabash could be expected to prosper only when enough traffic was moving to cause an overflow of business from its more powerful competitors. The increased proportion of fast freight business now moving seems to have put a new aspect on the situation, primarily, one would suppose, because the road's ability to move fast freight expeditiously has enabled it to induce shippers to mark their freight for its lines. It is railroad history that traffic arrangements were most likely to be upset by the weaker roads which most needed the business and were willing or required to make sacrifices that their stronger neighbors were less desirous of making. The Wabash was no exception and for years it was a continuously unsettling factor in the strategic conditions of trunk line territory. This culminated in the Gould's attempt to get into Pittsburgh and the collapse of the whole Gould system. Today it is a different road from what it was when Gould controlled it, both from the standpoint of traffic and operation, but apparently history is again going to repeat itself. This time the issue is mergers. The Wabash apparently will continue to be an unsettling factor in trunk line territory until that time comes when it has been made part of some larger system. Apparently stock market realization of this fact—rather than more basic conditions—is the chief reason for the present popularity of Wabash stock.

Nickel Plate Train Control Approved

WASHINGTON, D. C.

THE Interstate Commerce Commission on February 26, made public a report by Division 1 approving, with exceptions, the installation of the automatic train-stop system of the Union Switch & Signal Company on the Chicago division of the New York, Chicago & St. Louis, from West Fort Wayne, Ind., to Stony Island, Ill., 139 miles, of which 123.1 miles is single track and 15.9 miles double track. There are 53 locomotives equipped with the device. The installation was made under the commission's order of June 13, 1922.

The cost of this installation, as reported by the carrier, covering wayside and locomotive equipment is as follows:

Roadway Equipment:

Total cost of roadway equipment of train control installation, less power lines and power apparatus, and less cost of signals or cost of change in existing signal system, less salvage	\$55,101.91
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Total cost of changes in existing signal system made necessary by train control, less salvage.....	72,754.42
Total all other roadway equipment costs.....	1,614.08
Total cost of roadway installation.....	\$129,470.41
Locomotive Equipment:	
Total cost of locomotive equipment installed.....	56,957.87
Total cost of installation.....	\$186,428.28

The exceptions and the requirements as to maintenance, etc., are as follows:

1. In this installation the H signal relay control common is carried through the track inductor winding, and since the development of crosses or grounds in the signal control circuits could result in a false-clear condition, the inductor circuit must be completely separated from the signal circuits.

2. The reset element on all locomotives must be removed to a location at which it cannot be operated while the locomotive is in motion.

The railroad company is expected to comply with the following requirements as to maintenance, tests, inspection, etc.:

1. The generators in use at the time of inspection would not maintain the constant voltage required for the operation of the train stop system. It is understood that these generators are being removed, and generators of adequate capacity substituted. This program should be vigorously followed to a conclusion at the earliest practicable date—this date being now understood to be April 1, 1927, or before.

2. At the time of the inspection there was evidence that the locomotive apparatus was not being adequately maintained. Grounds in the locomotive circuits were not being kept at a minimum * * *

3. The locomotive relay is equipped with a variable spring adjustment feature for its armature, and at the time of the inspection this was being used to correct irregular conditions of headlight generator voltage, etc. This is contrary to good practice. These relays should be sealed after the initial installation and test with proper generator voltage, prescribed air gap, and accurately-timed low-speed test, and should not be changed unless there is a change in receiver coils, valve magnet, or other essential feature. Correction of irregular headlight generator voltage, or other variable factors in the circuit, should be made without recourse to the variable spring adjustment referred to.

4. It is suggested that the carrier give serious consideration to the restoration of an audible warning of suitable type in connection with this installation. This feature is an audible check on the locomotive apparatus as well as on the integrity of the track inductor each time an inductor at a caution or stop signal is forestalled.

5. Non-equipped locomotives must not be operated in road service in train-stop territory unless double-heading behind a locomotive the train-stop equipment of which is in service.

Locomotives with the device cut out must not be run in road service from terminals in train-stop territory unless double-heading behind a locomotive the train-stop equipment of which is in service.

When necessary to operate locomotives through to terminals with the train-stop device cut out account failure en route, special protection should be provided.

6. The relationship between the track inductor and the locomotive receiver must be maintained within the limits or margin of safety prescribed by the manufacturer. Check should be made periodically to insure that the inductors are at proper height and gage with relation to the rail, and free from crosses or grounds, reports being made on a form provided for that purpose and forwarded by the inspector to a designated officer. It is important that inductors be readjusted immediately after any change in rail. A case in point is that of the inductor at Signal 3945, October 14, 1926.

The importance of a periodical check is emphasized by the case of the inductor at Signal G-4719, October 20, 1926, which was found to have failed, due to a manufacturing defect.

7. Locomotive receivers should be checked with an accurate, substantially made gage, and on level track. These receivers should be carefully maintained at the prescribed height.

8. The closing of the inductor winding in this device results in a clear operation, from which it follows that a cross in the wires leading to this inductor would result in a false-clear condition. It is, therefore, necessary that the installation and maintenance of the track inductor circuit shall be such as to protect the integrity of this circuit. At signal 503-6, the inductor leads between the inductor and the double-groove trunking were found to be of temporary construction, pending the receipt of Parkway cable. Check should be made to insure that the temporary work has been properly replaced by permanent construction.

9. The roadway installation should be checked with the circuit plans whenever changes are made to insure that the circuits

are correct and the operation as intended. Many discrepancies between plans and installation were noted during the inspection, and, while we have since been informed by the carrier's representatives that this has been corrected, it is, nevertheless, of sufficient importance to warrant mention here.

Monon Train Control Approved

WASHINGTON, D. C.

THE Interstate Commerce Commission, Division 1, on February 26 made public a report approving, with certain exceptions, the installation of the automatic train-stop system of the Sprague Safety Control & Signal Corporation on the northern division of the Chicago, Indianapolis & Louisville from South Hammond, Ind., to Monon, 63.6 miles of single track. There are 32 locomotives equipped with the device. The installation is that made under the commission's first order (June 13, 1922).

The cost of the installation to date, as reported by the carrier, covering wayside and locomotive equipment, is as follows:

Roadway Equipment:	
Total cost of roadway equipment of train control installation, less power lines and power apparatus, and less cost of signals or cost of change in existing signal system, less salvage	\$26,560.22
Total cost of changes in existing signal system made necessary by train control, less salvage.....	78,334.60
Total cost of roadway installation.....	\$104,894.82
Locomotive Equipment:	
Total cost of locomotive equipment installed.....	38,482.59
Total cost of installation.....	\$143,376.41

The exceptions and requirements as to maintenance, etc., are as follows:

1. Upon petition, it was ordered on the 6th day of April, 1925, "that the Chicago, Indianapolis & Louisville Railway Company may install an automatic train-stop or train-control device upon the air line between Hammond and Monon, Ind., in lieu of the installation required in the said order of June 13, 1922."

In the petition, the carrier specifically prayed for an installation between the points named, saying that this "would cover a section 68 miles in length." The installation as made extends only from South Hammond, Ind., Signal 23.9, to the north limits of Monon, Ind., Signal 87.5, a distance of 63.6 miles.

The entire territory is equipped with automatic block signals and the installation must be completed as prescribed in the said order of April 6, 1925.

2. Since overcharging of the capacity reservoir may interfere with or prevent an automatic service reduction in the equalizing reservoir and brake pipe, adequate means must be promptly applied to and maintained on all locomotives to prevent such overcharging.

3. The ground reset button must be so located on all locomotives as to require that they be brought to a stop before a release of the brakes can be effected after an automatic application.

4. Non-equipped locomotives must not be operated in road service in train-stop territory unless double-heading behind a locomotive, the train-stop equipment of which is in service.

Locomotives with the device cut out must not be run in road service from terminals in train-stop territory unless double-heading behind a locomotive, the train-stop equipment of which is in service.

When necessary to operate locomotives through to terminals with the train-stop device cut out account of failure en route, special protection should be provided.

A check of the train sheets for the month of October and part of November, 1926, shows that during October, 11 different unequipped locomotives made a total of 60 trips over equipped territory, and only on three days of this month was operation confined to equipped locomotives. During the first 22 days of November there were unequipped locomotives operated over equipped territory for a total of 26 trips during 15 days.

Inspection Maintenance, Etc.

1. At the time of the inspection there was evidence that the locomotive apparatus was not being adequately maintained. Careful inspection and test should be made of the train-stop

equipment on all locomotives operated in train-stop territory upon arrival at, and before departure from, regularly designated inspection and repair points. * * *

2. At the time of the inspection, grounds in the locomotive circuits were not being kept at a minimum. * * * A case in point is that of locomotive 412, train 38, upon which a false-clear failure occurred on November 19, 1926, at Signal No. 31.2, which had been set in caution position for test purposes. This failure was due to the terminal box under the cab apron being partly filled with dirty water, which touched the binding posts and submerged the wires attached to these posts.

3. In cases of train-stop failure on the road, every effort should be made to definitely determine the cause and apply the necessary remedy in each case.

4. The magnetic receiver on the locomotive must respond to track impulses at all speeds up to the maximum possible, and the equipment company has a standard of adjustment which it is essential shall be insured through maintenance either by the equipment company or by the railroad acting under instructions of the equipment company. During the inspection it was found that the magnetic relay of the receiver of locomotive 412 had been opened and the contacts filed and adjusted by someone unfamiliar with such work.

5. In this installation, the automatic exhaust from the equalizing reservoir is made through a service application valve in the brake-valve head. The proper operation of this valve depends upon the maintenance of the integrity of the connecting pipe between the oil reservoir and this head, and of the movable parts in the latter. The Sprague Company has an alternative interchangeable construction in which the automatic exhaust from the equalizing reservoir is made at the pilot or vent valve, and this alternative interchangeable construction is brought to the attention of the carrier for consideration.

6. The choke in the oil reservoir and supply valve whistle is incorporated in the whistle itself so that the removal of this whistle removes the choke. The absence of the choke would operate to delay the application of the brakes, and the absence of the whistle with the choke would result in failure of the device to apply the brakes. It is understood that it is proposed to install the choke in the oil reservoir structure as a corrective of the condition described, and this change should be made promptly.

7. Locomotive receivers should be consistently maintained within the prescribed limits with respect to the top of the rail. During the inspection 50 per cent of those gaged were found to be outside of established limits, although no failures of the device were involved.

8. While and where storage batteries are employed on the locomotives, they should be inspected frequently to insure that they are properly charged for service.

9. It is suggested that, pending the installation of the new generators, and the removal of the storage batteries, trouble attributed to the weak spring of the cut-out relay in the current supply panel be studied with a view to its elimination.

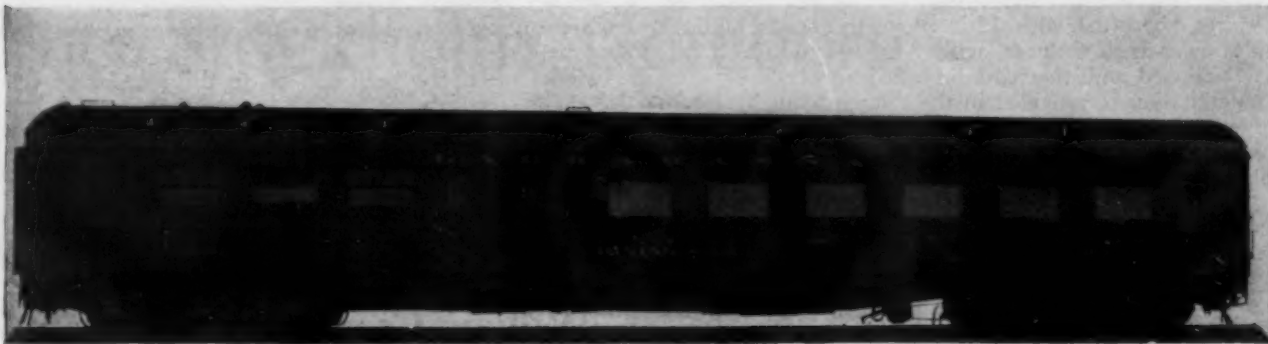
10. Attention is directed to the case of locomotive 421, which was found during the inspection in the C. & W. I. roundhouse at 51st street, Chicago, on November 18, 1926, with the equalizing reservoir service reduction choke almost completely stopped up with white lead. The carrier reported a previous case as occurring with locomotive 502 on July 13, 1926, when a false-clear failure occurred, due to an accumulation of gum and grease in this choke. These cases emphasize the necessity for such steps as will insure the prevention of failures of this kind.

11. All track magnets should be tested and the instructions of the manufacturer carefully followed as to procedure of installation. Magnets should be regularly inspected and tested to insure that they are in operative condition, and after each renewal of battery, wire, or magnet, should be inspected to insure that proper connections of the neutralizing circuits have been made; report being made on a form provided for that purpose and forwarded by the inspector to a designated officer.

12. Substantial filler blocks under track magnets should replace those missing or failing; this to the end that the magnets may be kept firmly in place and offer no chance for dragging equipment to catch under them.

13. Track magnets should be maintained within the prescribed limits with respect to the top of the rail. During the inspection variations were found ranging from level with the top of the rail to 2 3/4 inches lower.

14. It is suggested that there be substituted for the dual responsibility of two different departments for the maintenance and successful operation of the train-stop system, a plan under which an officer with authority commensurate with his responsibility, be placed in responsible charge.



One of Two New Dining Cars for the Delaware, Lackawanna & Western

Steel Dining Cars for the D. L. & W.

Dining room seats 36 passengers—Wide windows provide unobstructed view from the tables

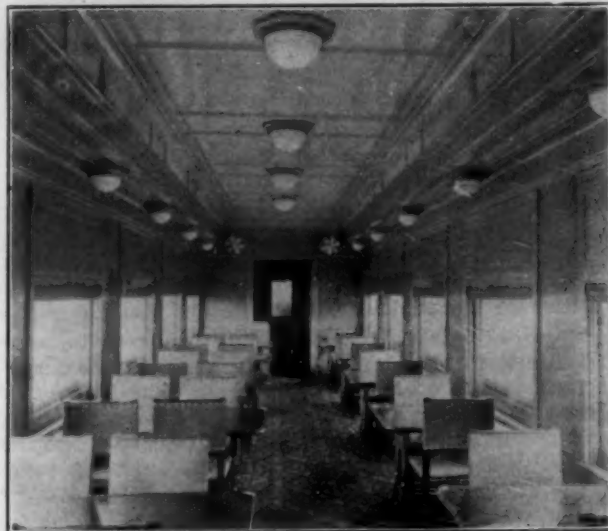
THE Delaware, Lackawanna & Western has recently placed in service on its "Lackawanna Limited" two dining cars of all-steel construction, built by the Pullman Car & Manufacturing Corporation, Chicago. Special care was taken in the arrangement of the interior decorations and furnishings and in the general design of the car, to give both the patrons and crew of the car the greatest comfort and convenience.

The length over the end sills of these cars is 77 ft. 6 in. and the outside width is 10 ft. The dining room occupies 38 ft. of the total length of the car and has tables arranged for 36 diners. Each table is 2 ft. 8 in. wide and is centered at a window, as shown in the floor plan of the car. The tables are 6 ft. 4 in. apart from center to center. The width of the windows is 4 ft. 3 in. which provides a large window area to give an unobstructed view from both sides of the table. This spacing of the tables allows ample room between them without crowding.

The combination of wide windows and wide upper deck of the clerestory assist to a considerable extent in giving an attractive appearance to the dining room. While the interior finish is not elaborate, sufficient patterns and shaped mouldings have been used to keep the interior from appearing plain. The walls and ceilings are finished in flat paint colors. Several tones of greens and yellows are used on the side and end walls, while a cream shade has been used in finishing the headlinings. Color lines and ornamental figures in harmonizing tints have been used for decoration.

The carpet on the dining room floor is of a shade which harmonizes with the interior decoration and is laid over a heavy Ozite pad. The other furnishings, such as window shades, chair upholstery and hardware

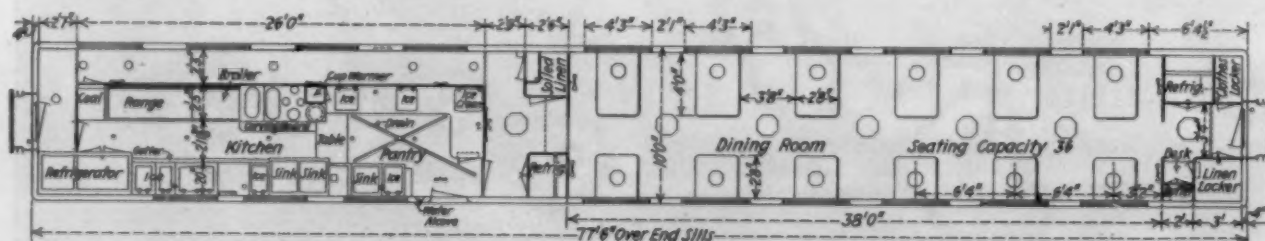
are of patterns and colors which harmonize with the general interior design and color combinations. The buffet, which is usually located at the end of the dining room adjacent to the pantry, has been eliminated on these cars. A large mirror, 20 in. by 20 in., has been placed on the



Interior of the Dining Room

wall in this location with a double-bracket electric light placed directly above.

The electric light fixtures in the dining room are of the bowl type, with wide ornamental bases. The upper deck



Floor Plan of the D. L. & W. Diner

fixtures are fitted with 12-in. diameter bowls and the side lower deck fixtures, with 8-in. bowls. Both cars are equipped with thermostatic heat control.

Ventilation is provided in the dining room by means of exhaust ventilators which operate through swinging panels in the upper vertical deck and also through ventilators in the lower rail of the outside window sash.



Looking into the Kitchen from the Pantry—Note the Absence of a Partition

The window ventilators are so arranged that they may be operated as desired by those sitting next to the windows. The dining room is also provided with four bracket type fans, two of which are mounted on the bulkheads at each end of the dining room.

Three exhaust fans have been installed in the kitchen and two in the pantry, to prevent smoke and cooking odors from escaping into the dining room.

The layout of the kitchen and pantry provides plenty of room for the cooks and helpers. The kitchen is separated from the pantry by only a hinged shelf. The combined kitchen and pantry occupy a floor space 7 ft. 1¼ in. wide by 26 ft. long, of which length approximately 10 ft. is utilized for the pantry.

One of the features of the kitchen equipment is an electric dish washer, which is placed in the sink adjacent to the hinged shelf separating the kitchen and pantry. The ice chests, work tables, cupboards, sinks and other

equipment are located to provide maximum accessibility and convenience.

Monel metal has been applied to the interior of the ice chests, refrigerators and all lockers and bins. It has also been applied to the outside of the refrigerator, dish racks and walk of the kitchen and pantry. The application of this metal has eliminated all paint in the kitchen and pantry from below the deck rails to the floor, which makes it easier to clean all the exposed surfaces without marring the appearance of the finish.

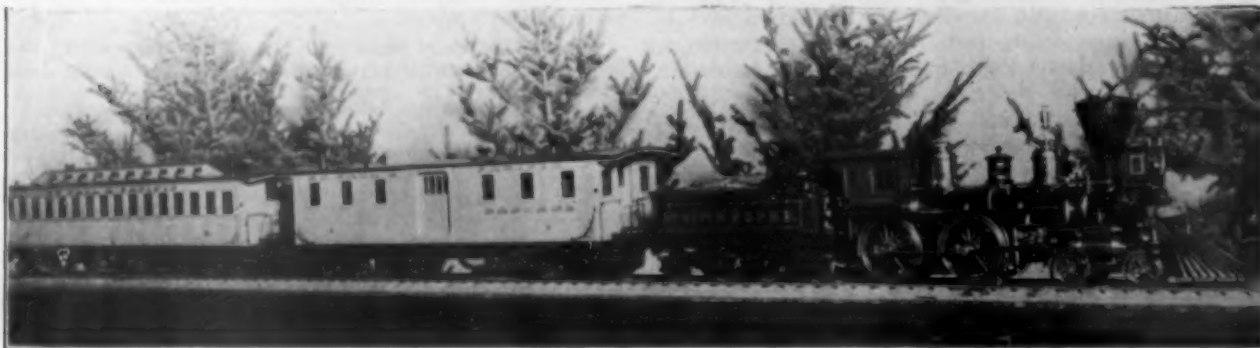
"William Crooks" Runs Again

THE Great Northern is exhibiting a miniature railway train that is constructed with mechanical exactness. There is a romantic story linking the northwest with the locomotive and cars of which it is a reproduction. The miniature is a cleverly executed model of the historic wood-burning "William Crooks" locomotive, tender and cars, which made up the first railway train operated in the state of Minnesota. This is the train the late James J. Hill had in operation when he was working out in his mind the building of a transcontinental railway to the Pacific Northwest.

This miniature train was built by employees in the Great Northern's St. Paul shops. The work had to be done entirely by hand and as no drawings were available, the old "William Crooks" engine was run into the shops and its parts carefully measured and used as working models for corresponding parts.

In every detail, even to the bolts and nuts, which have standard threads the tiny William Crooks is an exact reproduction of the original. It is complete as to cylinders, link motion, driving wheels, main and side rods, driving rods, guides, crossheads, reverse lever, throttle lever, cab mountings, driver springs and rigging. The headlight, which consists of 70 pieces, has a reflector, oil font and chimney.

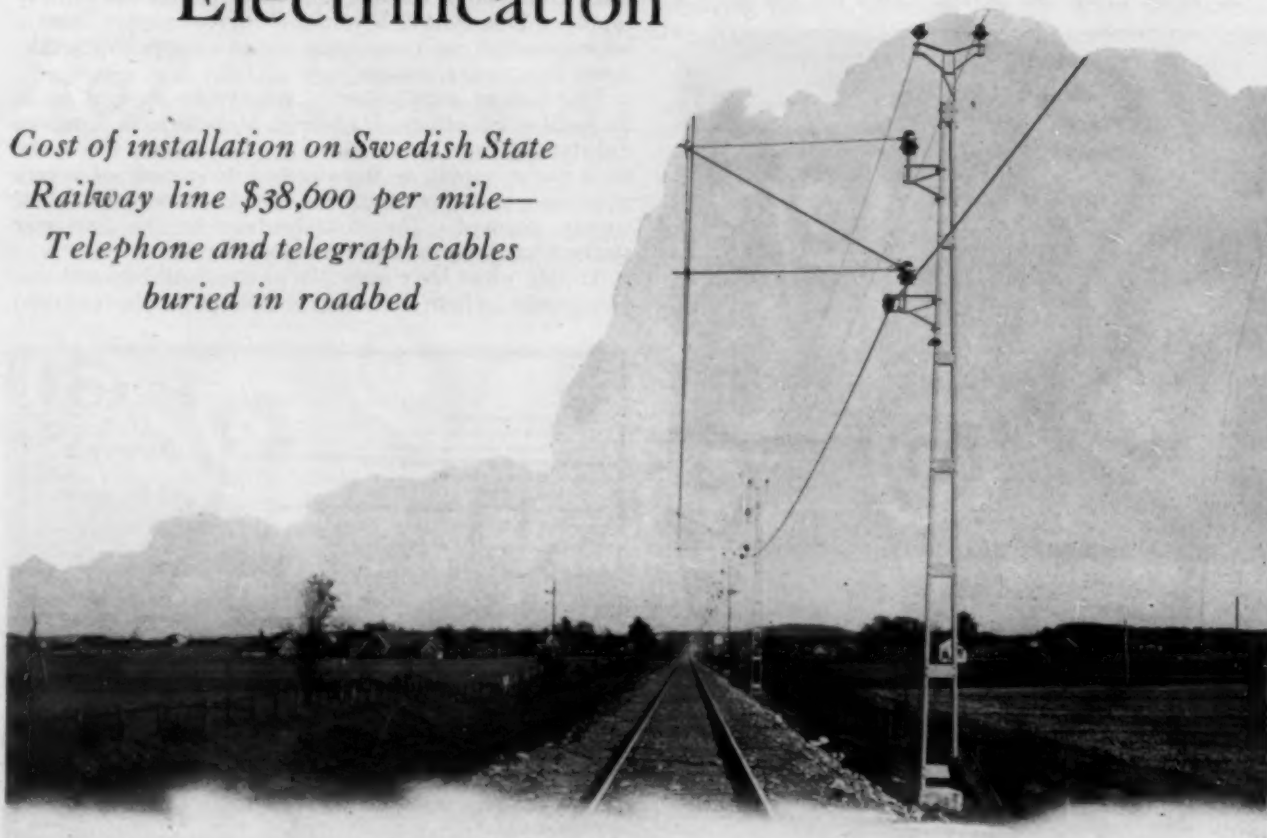
The weight of the tiny toy-like engine and tender is 26 lb. and the length over all is 38½ in. The total number of parts used was 1,626 including 26 castings, 546 bolts and nuts and 906 studs. Rough stock for the tiny hexagon bolts was cut out of ordinary square bar steel and worked to proper size and shape. Most of the bolts and nuts and some of the other minute parts were turned out on a jeweler's lathe and special taps and dies were used for threading. The springs were made of clock steel and are welded and shrunk on in the same manner as are the springs of the large original. The parts all function as they do in the first William Crooks, but in order to obviate the inconvenience of operating the locomotive with steam while it is on exhibition, a worm drive gear was applied to the rear drivers. This is operated by a small motor, which puts in motion all movable parts of the engine.



The Miniature Is an Exact Reproduction of the Original Train

The Stockholm-Göteborg Electrification

*Cost of installation on Swedish State
Railway line \$38,600 per mile—
Telephone and telegraph cables
buried in roadbed*



Type of Overhead Construction Used on Single Track Line

ELECTRIFICATION of the Swedish Government line from Stockholm to Göteborg, a distance of 285 miles, has been completed. Sixty-eight miles of the line is double track and 217 miles is single track. Running time of express passenger trains from Stockholm to Göteborg has been reduced from nine to seven hours. The work was sanctioned by the Swedish Parliament in 1920, and at that time the problems given special consideration were the kind and the source of power and inductive interference with communication circuits. These questions were studied by a special committee which made its report in 1923, when the work of electrification was started. Single-phase, 16,000-volt, 16 2/3-cycle power is used and communication circuits are placed in trenches along the right-of-way.

Inductive Interference

In the case of the electrification of the Northern Railway in Sweden, telegraph and telephone lines were moved to avoid disturbances, a precaution which increased line maintenance difficulties. In view of recent improvements in cable design, the telephone, and in some instances the telegraph circuits, have been placed underground between Stockholm and Göteborg.

Two cables have been installed, one for the railroad communication service, laid along the railroad, and a second for the Telegraph Administration's long-distance circuits. The latter, however, were placed along the

country roads as far from the railway as could be justified by economic considerations. It has not been found feasible to place all of the Telegraph Administration lines in cable along the railway. Thus, there are open wire interurban and subscriber's lines, which, as far as practicable, have been moved away from the railway line. Some of the Telegraph Administration lines, used almost entirely for transit traffic between Stockholm and Göteborg, still consist of open wire circuits, which, however, are a considerable distance from the railway.

These precautions do not eliminate disturbances due to induction from the current in the trolley circuit. To counteract these it has been found necessary to introduce a balancing circuit, which consists of a return wire, carried on the poles which support the trolley circuit, this wire being connected to the rail at intervals of 1.7 miles. In some instances (in the neighborhood of the larger converter stations) this distance has been reduced to 1.35 miles. At points approximately midway between these intervals, so-called feeder booster transformers are installed, their function being to force the current, which flows from the locomotive, through the rails, back through the return wire.

To obtain the desired result it has been found necessary carefully to adjust the position of the return wire with respect to the trolley circuit. Considerable difficulty was experienced in the stations in this respect on account of the extensive over-head contact network. It has been possible by the use of a special by-pass circuit

for the trolley current at the stations, to arrange the return path of the current so that the induction from the trolley circuit is prevented. Incidentally, this arrangement affords certain operating advantages.

The above mentioned arrangements for the elimina-



The Trenching Machine

tion of disturbances have, so far as can be ascertained, proved entirely satisfactory on the Stockholm-Göteborg line. By careful adjustment of the position of the return wire the disturbing voltage has been entirely eliminated in the long-distance cable between Stockholm and Göteborg, while the corresponding voltage in the railway communication cable, laid along the roadbed, has been reduced to less than one-half per cent of its original value.

An American trenching machine was used to accelerate the laying of the telephone and telegraph cables in the roadbed. This machine, drawn by a heavy steam locomotive, dug the required trench all the way from Stockholm to Göteborg and the work of laying the cable over the entire 285 miles of line was completed in six months' time.

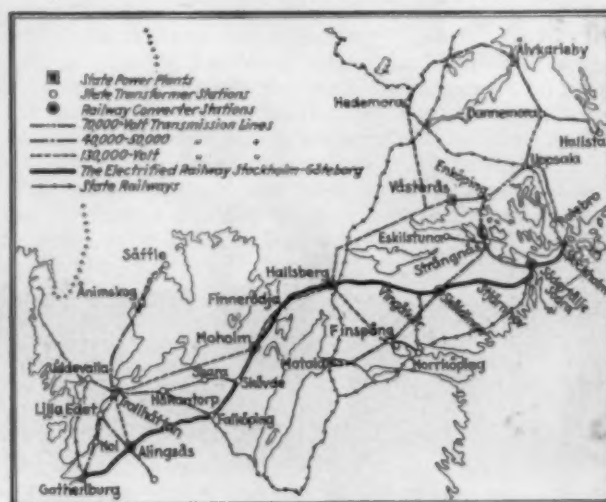
Power Supply

Single-phase current for the Stockholm-Göteborg line is taken from the existing widespread national

system, which has been extended at the major power stations: Alvkarleby, Västerås, Motala and Trollhättan. The main lines inter-connect these power stations by special arrangement, which enables power to be taken from one or the other, as required, for the railway supply. This insures a constant current supply from a network which need never fail due to a temporary breakdown in a power station.

The current supply to the railway is brought in at Södertälje, Sködinge, Hallsberg, Moholm and Alingsås. Substations have been erected at these places, where the three-phase supply is transformed by means of rotary converters to the low-frequency single-phase, 16,000-volt supply required. The distance between the converter stations has been made as great as 78 miles.

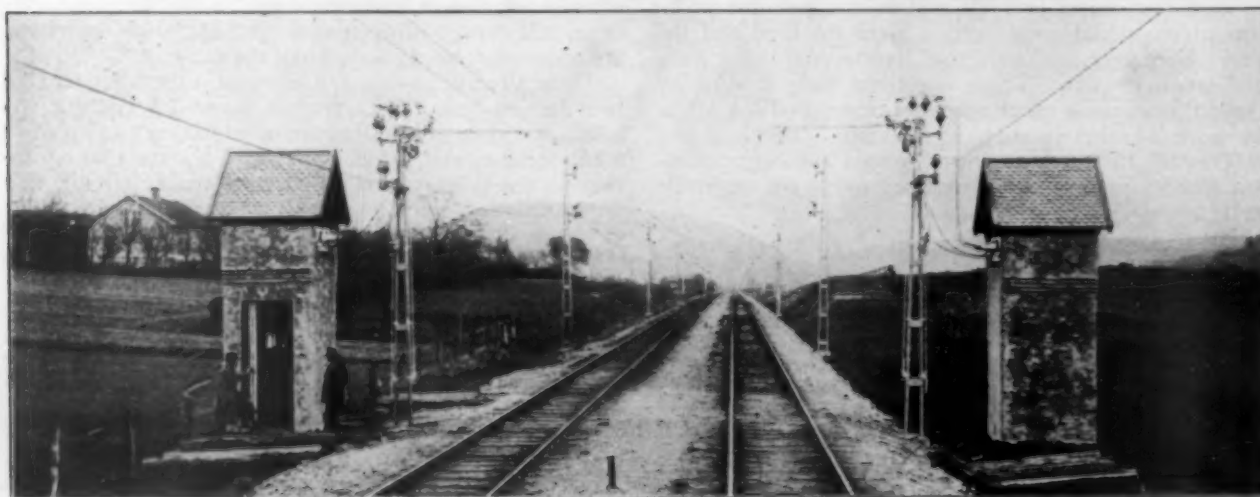
Trolley wires have been placed above all line and station tracks, where locomotives will pass; the required



Map of District Between Stockholm and Göteborg

changes have been made in the telegraph and telephone lines running near the railway and the first 50 electric locomotives have been procured.

The work on the electrification was started in the summer of 1923, Parliament having approved the revised plans of the Railway Administration. It required nearly a year to survey and mark positions for the electric lines, to plan in detail the buildings and to order the electric



A Section of Double-Track Line Showing Houses for Booster Transformers

locomotives and accessories required. During 1924 work began on erecting poles, laying telegraph and telephone cables and the building of the converter stations. While this work progressed the electric locomotives and apparatus for the converter stations were being made.

Overhead System

The trolley line construction is of the so-called "Z" type, which was used on the Northern Railway. The trolley wires are arranged on iron tube supports, hinged at the insulators, and are equipped with an automatic device for regulating the tension so as to keep it constant; also thereby providing a practically horizontal contact wire at all temperatures. Some improvements have been incorporated, particularly in regard to the section points and in the arrangements for switching in and out of the track transformers.

A heavy copper conductor is carried on the poles

drivers, and is equipped with two motors aggregating 1700 hp. The series type a. c. motors are gear connected to a single jack shaft mounted in the frame, level with the driving axles. Side rods transmit the power from the jack shaft gears to the driving wheels. By changing gears a passenger locomotive can be converted for freight service and conversely. About two days' time is required to make this change.

The central part of the locomotive cab houses the motors, switch gear, blowers, air compressor and the transformer used to convert the 16,000-volt supply to voltages varying from 24 to 1000. These different voltages are used for controlling the speed of the driving motors for lighting, heating and for auxiliary motors. The locomotives are designed for double-end operation and there is a control compartment at each end.

The total cost of the electrification at the present rates of exchange was in round figures \$11,000,000, which



A Nine-Car Passenger Train

which support the catenary and contact wire. This conductor is mounted on insulators at about the same height as the contact wire. It carries the return current and also acts as the compensating line in respect to the trolley circuit.

Another two-wire circuit is carried on insulators on the top of the trolley poles. This circuit carries current for lighting, small power supply and signaling for stations, station yards and other facilities along the line.

The trolley circuit is divided into 12 independent main sections which are fed directly from the converter stations. Södertälje and Alingsås each supply power to three sections, while the remaining three converter stations feed two sections each. The converter stations operate entirely independently of each other and their line networks are separated by so-called "dead" sections in the trolley system. The electric locomotives coast over the "dead" sections.

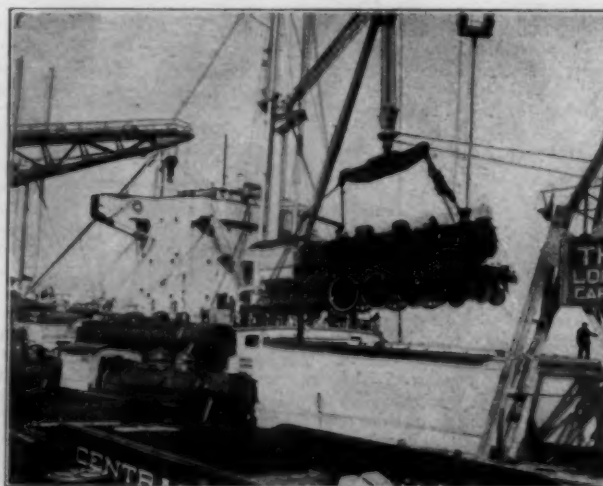
Locomotives

The express and passenger trains on the Stockholm-Göteborg line require locomotives with speeds up to 56 miles an hour, when pulling trains weighing 550 tons. Likewise, for freight trains weighing 1000 tons locomotives with speeds up to 44 miles an hour are required. The weight of the locomotive is not included in the above figures. The types of locomotive adopted are identical in external appearance, each being provided with three driving axles and two guiding axles; one at the front and one at the rear.

Each locomotive weighs 88 tons, with 56.3 tons on

represents a cost of \$38,600 per mile of electrified road. The cost is made up about as follows:

Converter stations.....	\$1,200,000
Trolley wires, etc.....	4,100,000
Cables and removal of telegraph and telephone lines.....	2,900,000
Locomotives	2,900,000



Wide World

Loading 44 Locomotives for Shipment to Brazil at the Eddystone Plant of the Baldwin Locomotive Works

Loose Practices in Train Dispatching

WASHINGTON, D. C.

A "LAX condition with respect to the issuing, transmitting and handling of train orders" said to exist on the Denver & Rio Grande Western, is the subject of a supplemental report by W. P. Borland, director of the Bureau of Safety of the Interstate Commerce Commission, on the collision between westbound passenger train No. 7 and eastbound passenger No. 8 near Granite, Colo., on August 20, 1925, which resulted in the death of two employees and the injury of 96 passengers, 19 railroad employees and two Pullman employees. The supplemental investigation was undertaken for the purpose of ascertaining what had been done toward correcting "the loose methods of handling train orders which were disclosed in the original investigation."

The original report was abstracted in the *Railway Age* of November 14, 1925, page 905. The eastbound train, three hours late, was descending a steep grade, on a curve of twelve degrees, moving at about 30 miles an hour when it met the other train. The operator at Tennessee Pass had neglected to deliver train order No. 71 to No. 8. Having occasion to file order No. 69, which had been annulled, he by mistake filed order No. 71 instead. On the dispatcher's book, the record showed that he had delivered order No. 71 but the operator claimed that he did not so report. There was a direct conflict between his statements and that of the dispatcher. The report filled a dozen pages, with many statements of examples of irregular practice.

Regarding the results of the supplemental investigation, the present report says, in part:

The supplemental investigation into the train-order practices of this railroad was extended to include the Pueblo and Grand Junction Divisions as well as the Salida Division; it embraced a check of the dispatchers' train-order books and also of the train orders and clearance cards issued at various stations, and was somewhat general in its nature, with the idea of developing the situation as a whole.

It appeared that shortly after the occurrence of the Granite accident instructions were issued by the superintendents of the three divisions named calling attention to rule 208, particularly that portion of it requiring that the operator at the meeting or waiting point be included among those to whom a train order is addressed. Instructions were also issued covering certain other rules, and emphasizing the fact that all rules relating to the handling of train orders must be strictly observed. Notwithstanding the issuance from time to time of instructions which were perfectly clear and which should have been thoroughly understood by all concerned, and notwithstanding the fact that the necessity for observance of the rules was, in one way or another, brought to the attention of all concerned from general superintendents down to the telegraphers and agents, there still appears to exist on this railroad a lax condition with respect to the issuing, transmitting and handling of train orders. Violations of the rules both by dispatchers and operators were of such frequent occurrence and involved so many of the rules governing the movement of trains by train orders that no attempt will be made in this report to cover all of them in detail.

Varied Grounds for Criticism

Certain features, however, are worthy of special attention. At a station where the operator goes off duty at midnight, orders were issued at 10:30 p.m. providing that after 4:01 a.m. (no date given) engine 457 would run extra, etc.; after it had been made complete this order was left on the train register for the crew to obtain when coming on duty the following morning; and in conversation with one of the chief dispatchers that official stated that under such circumstances it was customary to follow this practice of leaving orders for crews to obtain on the following day.

On another division an operator cleared a train with two orders on Form 19 and one order on Form 31, but there was nothing in the dispatcher's train-order book to show that the

train had been cleared at that station. Many other instances were found where trains, both first-class and extra, had been cleared, either with or without orders, with no record in the dispatcher's order book to indicate that they had been cleared.

There were also many cases where the numbers of the orders as shown in the order book did not agree with those on the clearances, one example being where an operator cleared a train with train order No. 172 at 1:45 a.m. while the order book showed that the train was cleared with train order No. 17 at 4:46 a.m. There were several cases where the form of the order as shown in the order book did not agree with the form of the order as shown on the clearance card, or where the clearance card showed that a train was cleared with orders while the order book showed that it had been cleared without orders.

There were several cases where the order book did not indicate on what form the order was issued, and in one case the operator cleared a westbound train with an order which the dispatcher had addressed erroneously to an eastbound train, while in another case an operator copied two train orders under one number. There were innumerable cases where train orders had been annulled without the making of a notation on the operators' copies to show that they had been so annulled; in fact, on one division there were 70 such instances within a period of 18 days.

It further appeared that orders were frequently issued in the following form: "Engine 3408 run extra from Malta to Min-turn take siding not leave Tennessee Pass unless extra 1152 east has arrived." A somewhat similar situation was disclosed in an order which directed engine 3400 to run extra with rights over extra 1163 as far as Brown Canon and not to pass Brown Canon unless engine 1163 had arrived. The effect of such orders is the same as that of a wait or a meet order, both of which types of order require the use of a middle order issued to the operator at the meeting or waiting point. By putting out the orders in the forms illustrated above, the dispatcher avoided the use of the middle order, although strict instructions had been issued indicating that it was the desire of the management that middle orders be used whenever it was possible to do so.

There were violations of the rule requiring train orders to be in the same form to all persons or trains addressed, of the rule requiring the use of middle orders when meet or wait orders are issued, and of the rule requiring that an order sent to a superior train at the point where its rights are restricted must be on Form 31 with that fact stated in the order. There was even a violation of the rule requiring train orders to be numbered consecutively and of the rule requiring the use of a Form 31 order when reducing a time order.

It further appeared from the supplemental investigation that on two of the divisions in question blank train orders, Forms 19 and 31, are provided in telephone booths for the use of trainmen and enginemen, but copies of the orders so received by these employees are not preserved. On the other division no blank forms of orders are provided for use in telephone booths, it being necessary for trainmen and enginemen to write any orders received at such points on anything which may be available for the purpose; obviously no copies of such orders are preserved.

Conclusions

In the report covering the original investigation the following statement was made:

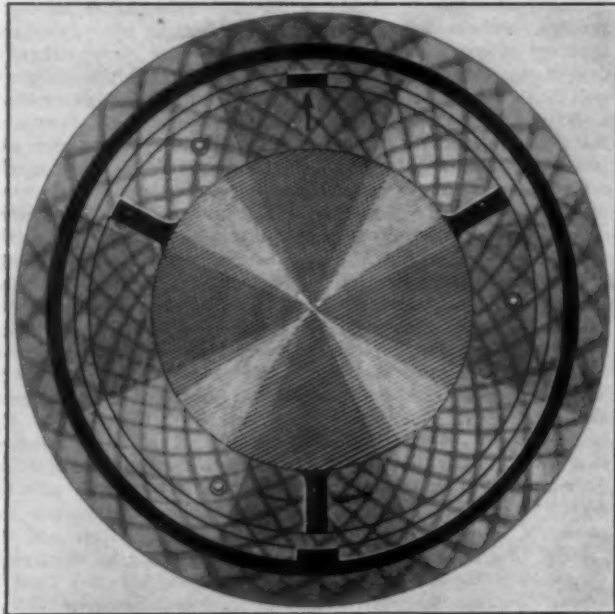
It would be difficult to imagine a more inherently dangerous system, or lack of system, for the operation of trains under the train-order method of operation than that which appears to exist on this railroad. The disastrous results usually attendant upon careless handling of train orders are well illustrated in the present case, and the number and character of the violations of the rules governing the handling of train orders raises a question as to whether the operating officials of this railroad have a proper appreciation of the responsibilities of their positions.

The results of the supplemental investigation indicate that this question can be answered in the negative. As was suggested in the original report, the enforcement of rules is one of the responsibilities of an operating official and that this responsibility is not met by the mere issuance of instructions to subordinates, calling upon them to observe the rules, seems rather obvious if the situation which was developed in the course of the supplemental investigation is to be taken as a criterion. It is true that an occasional dispatcher has been taken out of service and that operators have been disciplined. It is equally true that the situation today appears to be as bad as it was at the time of the original investigation, although there has been an interval of nearly 18 months within which steps could have been taken to correct the situation.

The people at large, as well as the employees, have an interest in the operation of a railroad, certainly to the extent of assuming that everything practicable will be done to reduce the dangers which necessarily surround the operation of trains. This duty to the public and to its employees is not being met by the operating officials of the Denver & Rio Grande Western.

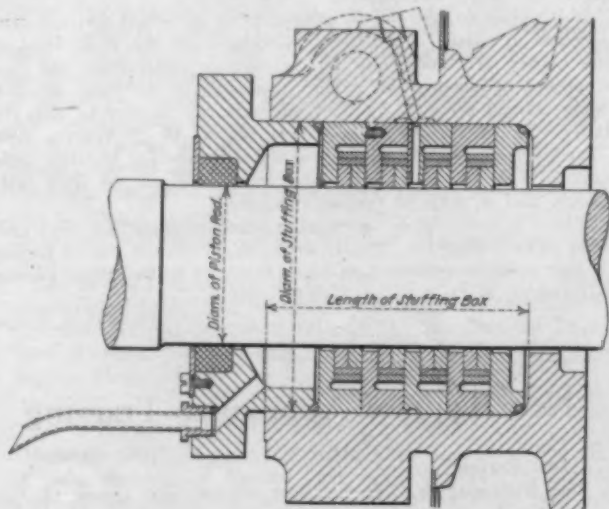
High Pressure Cast Iron Metallic Packing

THE Artan high pressure, cast iron, metallic packing, which is manufactured by the Artan Company, 50 Church street, New York, consists of a series of ground cups which fit against each other,



Sealing Unit of the Artan Cast Iron Metallic Packing

forming a steam-tight seal when pressed into the bottom of the stuffing box by the gland, through interposed end sealing rings which are generally of copper wire. The cups thus form the grooves for the packing rings. The inner cup rests against a ground ring. Each packing



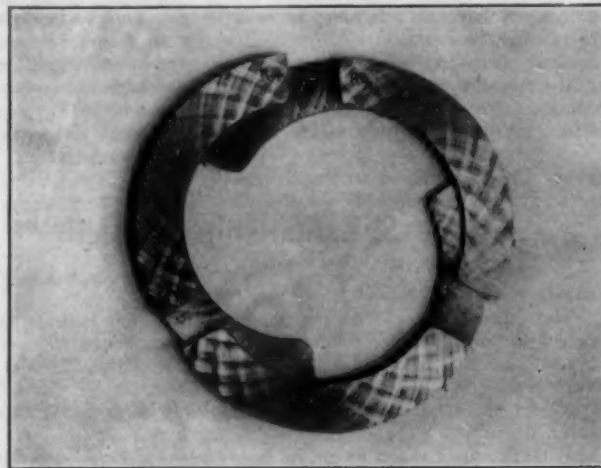
Section of the Artan Cast Iron Rod Packing

ring set consists of two rings of rectangular section placed side by side, with two cast iron spring rings surrounding the outer circumference of the two sealing rings. The spring rings, as well as the packing rings, have a working fit in the grooves.

Each of the two sealing rings is cut into three parts

and the adjoining pieces of the two rings are pinned together so that the staggered relationship of end joints in the two rings will be permanent. The openings in the spring bands are similarly separated so that one complete set of rings, consisting of two rod sealing rings and two outer spring rings, forms a tight sealing unit. Each unit is free to move laterally within its cup chamber and follows the lateral movements of the reciprocating rod which it is to seal.

In this construction the rings press only lightly inward against the rod with the pressure of their own springs so that the necessary film of lubricating oil will not be squeezed away from the rod and there will be no metallic contact between rings and rod. The wear of the packing is said to be slight and its life remarkably long. It is tight with the highest pressures and temperatures, because, in addition to the direct sealing action of the individual sets there is an important "labyrinth" or



Adjoining Sections of Each Pair of Rings Are Held Together with Pins

"cataract" effect represented by the group of cups which wiredraws any steam that may otherwise tend to leak past the individual ring sets.

The packing is in service on locomotives of the Austrian Government Railroads.



Wide World

The King of Siam Dedicating a New Railroad Bridge Named in Honor of His Predecessor, Rama VI

Communications and Books

"What Station Was That?"

STAPLETON STATION, S. I. N. Y.

TO THE EDITOR:

Your editorial "What Station Was That?" in the *Railway Age* of February 12, page 452, interested me. You are perfectly right about those station signs. It is to be hoped some plan can be devised to erect signs far enough back on company property so the name of the town can be noted by travelers on express trains. It would be a distinct aid to the traveler—he could get his location, something that I require in my business. To get the information I am compelled to ride mostly in a day coach; a Pullman porter doesn't call out the names of the stations. I have to ask him; he will let you know when you are nearing your destination, but that is not all that a roadman requires. I and my roadmen need to be on the alert looking out of the windows when approaching a respectable town and terminal. From that view we can determine whether to stop off at that point on some future trip over the same line.

W. VOLKHARDT,

President, American Railway Hydrant & Valve Company.

Traffic Salesmanship Needed

NEW YORK.

TO THE EDITOR:

Your recent editorials on the passenger situation indicate the importance of the subject. Surely, it is a challenge to every railroad man. It is of no less interest to railroad stockholders. When a loss of one-fourth the business occurs in six years, it is evident that the character of salesmanship must be at least partly at fault.

In its decision in the Western Rate Advance Case, July 14, 1926, the Interstate Commerce Commission said: "A public duty rests upon the managements of the carriers, individually and collectively, carefully to survey the passenger situation and to exert every legitimate effort to place this branch of their operations on a more compensatory basis." Presumably, the same instructions could be applied to roads in other territories.

A query was directed to three roads, asking information as to round trip rates to a certain resort, returning via diverse route. Three replies were received in due course, all of which had the faithful old standby of railroad salutation, "Dear Sir." None expressed any apparent interest in whether or not the prospective travelers used their lines. One, it is true, agreed with an observation made in the writer's letter that the route in question was one of scenic attractions, but that was as near as any came to evincing any "sales talk."

Another reply stated that a timetable was being sent under separate cover. If it was sent, it is still on the way. Two of the letters also stated that they were referring the matter to their New York passenger agents. One of the latter wrote a further letter offering to give additional information; the other, apparently, did not need the business, as he ignored it.

These communications are interesting. One of them gave only a partial reply to the queries as to rates. None of the three complied with a request that data pertaining to this section be sent to the prospective traveler. "Data" might reasonably include either hotel guides, chamber of commerce brochures, or information as to the industrial growth in the territory in question. The word was, admittedly, too comprehensive a term to use, but it mattered not—nothing was sent in compliance with the request.

The individual who wrote these letters to the railroads happened to own some stock in one of these roads—he has, in fact, been quite an ardent solicitor for the road in question. After getting a first-hand impression of its salesmanship in this fashion, the reason for its 10 per cent decrease in passenger business in three years became apparent. Such a decrease must come largely out of the stockholders' dividends.

Salesmanship is an art which requires tact. Neither erudition nor good clothes can sell goods. A combination of cordiality, without effusiveness; a sincere belief in the value of one's product, without too insistent an exploitation of it; and an apparent interest in *pleasing the prospect*, by anticipating his desires, are the qualities most needed in selling goods. Experience has proved that these factors are quite potent in creating a favorable impression of one's wares—assuming, of course, that the prospect has not already climbed into a hole and pulled the hole in after him. How much these qualities are reflected in railroad passenger salesmanship, in many cases, may be judged from the above. Unfortunately, railroad officers cannot very successfully disguise themselves and do detective work along these lines, for, as the Chinese proverb wisely proclaims, "One seeing is worth a hundred tellings." Railroad stockholders have a right to be informed of the character of the salesmanship being displayed, however.

Consider the motion picture business. From personal experience, it can be stated that if railroad passenger salesmen (why are they not designated as "salesmen") displayed the adroitness, skill, extensive exploitation and comprehensive planning for business as is evidenced in this industry, there is no question that they would prosper. The motion-picture business has grown and grown because it is directed by men who give incessant thought to impressing on the public consciousness the names of its stars, the alleged fame of the producers and the "merit" of their productions. Their product may be uninteresting, seldom elevating and rarely instructive, but they "put it across" because they go after the business. Seniority, in all its iniquitous forms, is unknown. A salesman gets the business, or he gets out. A publicity man creates the desire to see the product of his directors, or he moves on to other pastures, fertile or otherwise.

Think, too, of the type of men engaged in the motion-picture industry—inferior in knowledge, instinct and lineage to our railroad men, but *superior* as salesmen. The comparison may be termed an illogical one, yet the degree of salesmanship displayed in two industries, both catering to pleasure-seekers, makes it highly effective, nevertheless.

It is unfair to railroad security-holders to permit this constant decrease in passenger revenues to recur when the plain facts of the matter are that, with a few notable exceptions, the men employed in meeting the public, personally or by letter, are not being trained properly by their supervisors. It may be that the latter consider the old methods best, but, as W. P. Warren says, "Precedents must give place to progressiveness." And the Bible says: "Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you."

There is a wealth of potential revenue awaiting the alert railroad sales managers. It only needs to be coaxed out of hiding. It only requires optimism, tact and initiative to find these missing passengers, as railroad stockholders know.

FRANKLIN SNOW.

New Type of Apprentice Training

BALTIMORE, Md.

TO THE EDITOR:

The Baltimore & Ohio has just entered into a new kind of apprentice training. An apprentice, before entering the employ of the company, must first of all show credentials or have a letter from his school, showing that he has a sufficient fundamental education and a reasonable amount of ability. The preliminary school training the boy has received before entering the apprentice ranks is most important. The railroad is anxious to get the best material available, and with this in mind is co-operating in every way possible with the boards of education in the cities where it maintains shops.

After producing his letter from the public school he must

next pass an examination. This consists of examples in fractions, decimals and equations. If he passes this with a fair mark his name is recorded on a waiting list and when an opening occurs he is taken into the service.

Along with his shop practice the apprentice is furnished a free course, consisting of mathematics, blue print reading and mechanical drawing. This work is to be done at home and mailed to the school for correction. An apprentice instructor is placed at different stations, whose duty is to explain certain parts of the lessons which may seem difficult to the apprentice. An apprentice failing to keep up in his school work is subject to furlough until he has completed the required allotment for each period.

Toward the close of the apprentice's training period he is taken into the office of the apprentice instructor for at least one month's work. Usually there are many sketching jobs to be done and by sending the apprentice to do this work and by letting him take the responsibility of procuring all the necessary information for the completion of the sketch, he is given an opportunity to show his ability and capacity for handling bigger jobs.

This system for training apprentices is new and only time will tell its real value, but to date the apprentices are entering into this new enterprise with vim and zeal, and the prospects look big for the future mechanics.

WILLIAM E. LEHR,
Special Apprentice.

Books and Articles of Special Interest to Railroaders

(Compiled by Elisabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

British Wages, by Charles E. Lyon. In two parts: I, Wage determination, and II, Wage rates. Railway wage development 1918-1926, p. 7-8, and Appendix III. Railway wages, p. 52-53. U.S. Dept. of Commerce. Trade promotion series no. 42. 72 p. Pub. by Govt. Print. Off., Washington, D. C. 15 cents.

Factors in the Efficiency of North American Railways, by C. E. R. Sherrington. A really notable achievement in presenting in a relatively short paper descriptions of the "latest" in American equipment and facilities, and translations of American railroad terms into English. No. 199 in the 1926-27 Proceedings of the Great Western Railway (London) Lecture and Debating Society. 28 p. illus. Pub. by Great Western Railway (London) Lecture and Debating Society, London, England.

Report on Improved Transportation Facilities in the Boston Metropolitan District Submitted in Accordance with Chapter 45 of the Resolves of the Legislature of 1924. December 1926. Steam Railroad lines, p. 15-22, contains brief descriptions of the lines serving Boston, their respective yearly passenger traffic, and its characteristics. 85 p. 17 plates. Pub. by Division of Metropolitan Planning, Commonwealth of Massachusetts, Boston, Mass.

The World's Railways, by G. Gibbard Jackson. A popular, non-technical book, well illustrated and suggested for those who like data without statistical tables. 165 p. Pub. by Raphael Tuck & Sons, London, Eng., and David McKay Co., Philadelphia, Penna. \$3.50.

Periodical Articles

Business Has Wings, by Earnest Elmo Calkins. The effect of fads, changes of fashion, and habits on various carefully built-up businesses, with some mention of railroads, and what is being done about it. Atlantic Monthly, March 1927, p. 306-316.

Railroad Passenger Facilities, by Prof. William Lyon Phelps. Comments in his widely-read "As I Like It." Scribner's Magazine, March 1927, p. 327-328.

Value for Taxation and for Rate Making, by George G. Tunnell. "...the question will be considered whether value as defined by law for taxation and value as defined for rate making by Section 19a and Section 15a of the Interstate Commerce Act are one and the same thing." p. 1. Journal of Political Economy, February 1927, p. 1-38.

Looking Backward

Fifty Years Ago

Trains are now running regularly on the Boston & Maine, the places of the striking enginemen having been filled. The company has come off wholly victorious in its resistance to the dictation of its employees.—*Railroad Gazette*, March 2, 1877.

Electric signals have been placed in the San Fernando tunnel on the Southern Pacific. They are placed one at each entrance to the tunnel, the connection between the signals being made by means of the rails. A train entering the tunnel connects the two rails together by means of the axles of the engine and cars, cutting off the galvanic battery current, and causing the signals to show a red flag at each end of the tunnel.—*Railway Age*, March 8, 1877.

The United States Supreme Court has sustained the "granger" laws of Wisconsin, Minnesota and Iowa which provide maximum charges to be made by railroads for the transportation of persons and freight within the states or between various states. The decision is that until Congress acts in reference to the relations of interstate commerce it is competent for a state to regulate the laws of railroads so far as they are of domestic concern.—*Railway Age*, March 8, 1877.

Twenty-Five Years Ago

The Illinois Central has determined to plant 200,000 catalpa trees on lands that the company owns in Mississippi in order to provide a future supply of railroad ties.—*Railway and Engineering Review*, March 8, 1902.

Martin A. Knapp, chairman of the Interstate Commerce Commission, authorizes the announcement that suits will be commenced at an early date to enforce the provisions of the Interstate Commerce Act which prohibits rebates, discrimination and pooling.—*Railway Age*, March 7, 1902.

"Gravity is an important power in switching," declared George Hannauer, chief clerk to the superintendent of the Terminal Railroad Association of St. Louis, before the February meeting of the St. Louis Railway club. "Where the work is of sufficient magnitude and the yards can be properly arranged it has been found valuable as an impelling power, and every yard will be benefited by enough of it to keep a car rolling after the engine has placed it in motion. . . . A railway may handle 95 per cent of its business with promptness and dispatch, but its reputation is established by the 5 per cent that it delays."—*Railway and Engineering Review*, March 8, 1902.

Ten Years Ago

The application of 28 railroads operating in Illinois to enjoin the enforcement of the state's two-cent passenger fare was denied by Associate Justice Clarke of the United States Supreme Court on February 23.—*Railway Age*, March 2, 1917.

The receivership of the Boston & Maine was made permanent by the federal district court at Boston on February 26. Judge Morton in announcing his decision stated that there was not the slightest foundation for the charges of fraud made by the minority stockholders against the board of directors.—*Railway Review*, March 3, 1917.

Bills limiting the length of freight trains have been introduced in the state legislatures of Missouri, Iowa, Kansas, Colorado, Utah, Nebraska, Texas, New York and Oregon. The bill introduced in the Missouri legislature limits the length of local trains to 30 cars and through freight trains to 45 cars. Bills introduced in other states are similar in their provisions.—*Railway Age Gazette*, March 2, 1917.

Odds and Ends of Railroading

The noise produced by locomotive whistles is not always a pleasing sound to the townspeople. Frequently chambers of commerce pass resolutions against it and send in letters of complaint. But the town of Riverton, Ind., on the Illinois Central, has reason to be thankful for the locomotive whistle and for Engineer W. E. Haney's persistence in blowing it. Coming through the town late at night on an extra, Haney noticed that several buildings were on fire. Nobody in town seemed to be aware of the fact, so Haney did everything with his whistle that he knew how to do and woke up the town, enabling the occupants of the burning buildings in the community to get out safely.

Railroad calendars, these past few years, have capitalized on the undoubted power and beauty of moving trains. A rushing locomotive, with a string of cars, gives a thrill to almost any spectator, but it is not the only sight in railroading that appeals to the aesthetic sense. A gracefully constructed bridge is a thing of beauty, as is a yard at night, with the signal lights turning the tracks into ribbons of blue, red, green and gold. An engine terminal at night is a masterpiece of industry, with the vari-colored lights flashing and illuminating momentarily the gnome-like figures as they go about their work of preparing the locomotives for their runs. There are many railroad scenes not usually regarded as beautiful that, none the less, are well worthy of perpetuation on canvas.

In the old days instances of towns fighting for railroads and railroads fighting for towns were of frequent occurrence. With the cessation of feverish construction and bitter rivalry, however, such cases became less numerous. That they are not entirely extinct is indicated by a recent occurrence in the southwest. Two railroads were building into a rich oil field. Both wanted to serve the county seat. The difficulty was that the county seat was two or three miles off the line of both railroads. One of the lines solved this difficulty very neatly. Funds were provided for a special election, and it was voted that, since the railroad could not well go to the town, the town should go to the railroad. Accordingly, the county seat was picked up, and now reposes snugly on the railroad.

Old Hank, the paternalistic suburban trainman, has added another to the list of cowed passengers who slink like school-boys from the rod of reproof which Hank shakes at them when they misbehave. The other night, as the train was pulling into a station in a snow-storm, a passenger in a hurry to alight descended to the bottom step before the train had stopped. Hank caught the miscreant by the sleeve to keep him from slipping and roared, "What do you mean, trying to kill yourself and get ME in trouble?" Commuters will be commuters and will ever risk their lives to catch a train after it has started or to alight before it has stopped, but we venture the opinion that those who ride with Hank stand at the head of the list in their deportment. Hank is getting old and he has railroaded a good many years. It would be interesting to guess how many lives and limbs he has saved by his hard-boiled treatment of careless passengers.

The Moon Story

"Some years ago," said Charles Frederick Carter in a recent address, "I called upon the vice-president of a justly celebrated railroad in quest of information. Presuming upon my verdant appearance, he sprung the moon story upon me. You know it well. It's about the train crew which, mistaking the full moon for the headlight of an approaching locomotive, took the siding and waited all night for the moon to come up and pass them. The vice-president embroidered that venerable yarn with a wealth of detail, giving train number, day of the week, month and year, the hour, names of the entire train crew, their family history, the

number of cars in the train and a verbatim report of what each one said. It was like meeting a long-lost brother, for I had first become acquainted with the moon story as applied to the Union Pacific away back in the '70's, and it had whiskers then. I have always loved the moon story—loved it so much that I had compiled an anthology on it, for each and every railroad has its own version of the moon story."

What Do You Mean by "Board"?

The Southern Pacific Bulletin (Houston, Tex.) invites trainmen to note the moral of the following:

"Among other good things done by train rules instructors is to teach everybody to call everything by its proper name. We don't 'high-ball' trains any more. 'Passing tracks' have given way to 'sidings' and the brave engineer is now alluded to as an 'engineman.'"

"Train order 'boards' are passe and we now call them train order signals. Rules Instructor Otis tells of an engineman approaching a station with the train order signal obscured from his view. He called to the fireman and asked:

"How is the board?"

"The fireman answered—'O. K.,' and the engineman released his air.

"I made \$162 the first half," added the fireman, however; and the engineman realized that while he himself was referring to the train order signal the fireman was talking about the 'extra board.'"

Handling a Million Holy Bathers

They do not have Eucharistic Congress crowds nor even big football traffic to handle on the Indian railways. Nevertheless, the railways there, like ours, have their little problems. Witness a letter we have received from Major F. H. Budden, a railway officer there:

Since my return to India in November I have had no time to do anything except carry on my ordinary work. I am one of the divisions of the East Indian Railway and find myself responsible for the arrangements for dealing with the traffic at a Mela to be held shortly. The Mela is a religious bathing festival at which large numbers of pilgrims congregate to bathe in the Ganges at certain holy spots. Every 12 years there is a specially large and important Mela at a place called Hardwar where the Ganges leaves the foot hills of the Himalayas. This time we expect about a million pilgrims and as Hardwar is situated on a small branch line leading on to a main line which is only a single track you can realize that fairly complete arrangements have to be made to deal with the traffic. We are expecting to run 30 specials a day for 10 days on end and as in addition, the ordinary passenger service has to be carried on and empty specials brought back there must be no hitch in the train working.

Lights

Have you ever watched the lights on the track,
Gleamin' red and green and gold?
If you've followed the rails to the coast and back,
You do not have to be told,

How the warm lights gleam on the M. & O.,
'Neath Mississippi sun,
And the cold lights glint upon the snow,
Where northern railroads run.

Let others ride on the dusty roads,
Give me a pantin' jack,
Tuggin' and pullin' a hundred loads,
Along the railroad track.

HEAD SHACK

NEWS of the WEEK



Boston & Albany—Photo by C. Parker

THE HOUSE has passed the bill previously passed by the Senate, S. 2615, authorizing railroads to transport a blind person and accompanying guide or attendant for a single fare.

THE BLACKSMITH SHOP, tool shop, and brass foundry at the Burnham shops of the Denver & Rio Grande Western at Denver, Colo., were damaged by fire to the extent of \$25,000 on February 23.

IMPRISONMENT for 25 years was the sentence in the United States Court, Boston, on March 1, imposed by the court on each of three train robbers, John Andrews, his son Michael and John Boyd, convicted of robbing a train on the Boston & Maine at Amesbury, Mass., in July last. The robbers intimidated the mail agent and took a pouch containing \$65,000. They were caught in January.

CONFERENCES on the wage demands of the Brotherhood of Locomotive Firemen and Enginemen, which were presented to the southeastern roads last year, were to begin at Washington on March 3, between a conference committee representing the railroads, of which P. R. Albright, vice-president of the Atlantic Coast Line, is chairman, and representatives of the brotherhood headed by D. B. Robertson, president.

SENATOR MAYFIELD of Texas, not having been entirely successful in obtaining amendments to the interstate commerce law to restore powers of state authorities in transportation regulation which have been somewhat curtailed, introduced in the Senate on March 1, three days before the adjournment of the present session of Congress, a joint resolution proposing an amendment to the commerce clause of the Constitution so that it would not permit any federal regulation of transportation wholly within a state.

PRESIDENT COOLIDGE on February 24 sent to the Senate the nomination of John Williams, of Oakland, Calif., for appointment as a member of the United States Board of Mediation, for a term ending December 31, 1930, succeeding Hywel Davies, deceased. Mr. Williams was for

many years an officer of the Amalgamated Association of Iron, Steel & Tin Workers, and since 1919 has been industrial manager of the Pacific Coast Steel Company.

THE UNION PACIFIC has entered into an agreement with the Maintenance of Way Foremen's Association, consisting of foremen in the maintenance of way department of this system, providing for increases in wages ranging from \$5 to \$15 a month. The increases affect maintenance of way repair shop foremen, \$15 per month, sand oiling foremen, \$10 per month, extra gang foreman, \$5 per month, and all section foreman, \$5 per month. The increases were granted following a conference called pursuant to a request of the Maintenance of Way Foremen's Association for adjustment in rates of pay, annual vacation with pay and consideration of certain other changes.

Locomotive Fuel Record, 1926

Class I railroads in 1926 consumed 101,007,549 tons of coal as fuel for road locomotives at an average cost of \$2.63 a ton or a total of \$266,054,143, according to the Interstate Commerce Commission's monthly statement; consumption in the previous year 97,404,200 tons; average \$2.71 and total cost \$263,758,941. In 1926 the railroads also consumed 2,067,272,099 gallons of fuel oil at an average cost of 2.95 cents a gallon, as compared with 2,067,048,551 gallons at an average cost of 3.14 cents in 1925. The cost of coal ranged from \$1.83 in the Pocahontas region to \$4.58 in the New England region.

Disastrous Fire at Jersey City

The superstructure of Pier K of the Pennsylvania Railroad at Jersey City, N. J., was destroyed by fire on March 3, together with other buildings, and about 40 carloads of freight, most of which had just been unloaded. The flames also destroyed a storehouse, formerly used as a freight house, and also spread to an adjacent lumber yard, the destruction including also 20 freight cars and one barge.

Pier K was used for the transfer of export and import freight, but other facilities

are available, so that no serious interruption of traffic will be caused by the fire. The cause of the fire is supposed to have been defective wiring.

Western Wages to Board of Mediation

The request for increases in wages for conductors, trainmen and yardmen equal to 7½ per cent of their present wages and made by the general chairmen of the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, on railroads in the territory west of Chicago, was referred to the Board of Mediation on March 3. The action follows a meeting opened on February 23, with the Conference Committee of Managers on Western Railways at Chicago. The Conference Committee estimates that the increase asked for would cost the railroads between \$11,000,000 and \$12,000,000 annually and would be the forerunner of wage demands by other railroad employees aggregating \$80,000,000 annually. The western roads claim that their earnings do not justify this increase, as they are smaller than those of the eastern and southeastern roads.

B. & M. Clerks and Freightmen Receive Nine Per Cent Increase

Demands of the clerks, freight handlers, express and station employees of the Boston & Maine for increases in their pay, submitted to a board of arbitrators, were settled on March 1, by an award in which the arbitrators grant increases aggregating about \$700,000 yearly. The arbitrators were J. P. Quilty on behalf of the railroad, H. D. Ulrich on behalf of the employees and Alfred W. Putnam.

Mr. Quilty, on the following day, made public a minority report in which he dissented vigorously against the majority decision, declaring that it goes far beyond the bounds of reason.

The award, says Mr. Quilty, equals an average increase of 9½ per cent, whereas employees of these same classes on other railroads have accepted arbitrations recently granting not over four per cent increase. Such an extreme award, says Mr. Quilty,

"unless it is to be regarded as one of those freak decisions occasionally rendered by a well-meaning arbitrator, who is drafted to settle a controversy in complete ignorance of the conditions involved," must seriously impair the orderly settlement of disputes of this kind. Mr. Quilty says that the road submitted incontrovertible evidence (which was not seriously challenged) going to show—

That it was paying higher wages to most classes of employees than its immediate connecting railroads;

That the clerical workers on the B. & M. were better paid than similar employees in industry generally in Massachusetts;

That both as compared with the pre-war period, the immediate post-war period, and the year 1923, in which these wages were passed upon by the Labor Board, the increase in wages had far exceeded the increase in cost of living;

That the existing rates were sufficient to attract competent help and to retain them in service; and

That before this proceeding began, the wages of this class of employees were nearer the peak than wages of other employees who had recently been granted increases.

A. R. E. A. Convention Program

The following is the program for the twenty-eighth annual convention of the American Railway Engineering Association which will be held at the Palmer House, Chicago, on March 8-10.

TUESDAY, MARCH 8.

President's address.
Reports of secretary and treasurer.
Reports of standing and special committees:
Records and Accounts.
Shops and Locomotive Terminals.
Ballast.
Electricity.
Standardization.
Track.
Ties.
Signals and Interlocking.

WEDNESDAY, MARCH 9.

Water Service.
Grade Crossing Design, Protection and Elimination.
Economics of Railway Labor.
Economics of Railway Operation.
Economics of Railway Location.
Iron and Steel Structures.
Rail.
Rules and Organization.
Annual Dinner.

THURSDAY, MARCH 10.

Yards and Terminals.
Buildings.
Wooden Bridges and Trestles.
Wood Preservation.
Uniform General Contract Forms.
Masonry.
Roadway.
Co-operative Relations with Universities.
Stresses in Railroad Track.
Clearances—Progress Report.
New Business.
Election and Installation of Officers.
Adjournment.

Taxation of Telegrams—Contract with Telegraph Company

Telegrams transmitted under a contract by which railroad and telegraph company exchange services are not to be classed as dead-head or free. The Missouri Pacific sued to recover \$14,792.95 taxes paid by it under protest on the transmission of railroad messages from March, 1920, to January, 1923, under a contract for exchange of services with the Western Union. This contract provided for the exchange of bills

for services each contract year and for payment by one to the other of any excess of \$75,000, or, if both bills exceeded that sum, of the difference between them. The federal district court for eastern Missouri gave judgment for the government for the tax on each message under Revenue Acts 1918, c. 18, § 500, and 1921, c. 136, §§ 500, 501. The Circuit Court of Appeals, Eighth Circuit, reversed that judgment, holding that the messages up to \$75,000 annually thus taxed were exempt, but that those in excess of that amount were subject to the tax. The Supreme Court of the United States has reversed the Circuit Court of Appeals and restored the judgment of the District Court. The Circuit Court of Appeals' view was that the contract was a mere swapping of free privileges and was not a service for a money charge. The Supreme Court does not think the privileges were free, but that the one for messages was set off against the one for transportation, and that the one paid for the other. *Hellmich v. Mo. Pac. Opinion* by Mr. Chief Justice Taft. Decided February 21, 1927.

U. S. Army Reserve Corps News—Railway Units

Captain Pearce P. Williams, Coast Artillery Reserve, New York representative of the Erie Forge Company, Erie, Pa., has been transferred from the 539th Coast Artillery (Anti-Aircraft), to the 602nd, Railway Coast Artillery.

First Lieutenant E. W. Peterson, Engineers Reserve, general storekeeper, Bangor & Aroostook, with headquarters at Derby, Me., has been promoted to captain, Engineers Reserve and is assigned to the Buffalo, N. Y., engineer procurement district.

Henry F. Bamberger, assistant supervisor, Pennsylvania, Maryland division, with headquarters at Chester, Pa., has been appointed second lieutenant, Engineers Reserve, and is assigned to the 492nd Railway Engineers Battalion.

First Lieutenant Robert G. Vawter, assistant trainmaster, Chesapeake & Ohio, with headquarters at Jenkins, Ky., has been promoted to captain, Engineers Reserve, and is assigned to 568th Railway Engineers Battalion.

John C. White, supervisor, Pennsylvania, Eastern Region, with headquarters at Tyrone, Pa., has been appointed first lieutenant, Engineers Reserve.

Fred F. Wright, traveling engineer, Illinois Central, with headquarters at Memphis, Tenn., has been appointed captain, Engineers Reserve.

Second Lieutenant Frederic T. Huston, master mechanic, Pennsylvania, with headquarters at Erie, Pa., has been assigned to the 493rd Engineer Railway Battalion, G. H. Q. Reserves.

James Smiley Richards, assistant master mechanic, Pennsylvania, has been appointed first lieutenant, Engineers Reserve.

William Henry S. Bateman, representative of the Parkesburg Iron Company, with headquarters at Philadelphia, Pa., and president of the Railway Supply Manufacturers Association, has been appointed captain, Engineers Reserve.

Thomas P. Crymes, Jr., supervisor, Illinois Central, with headquarters at Tut-

wiler, Miss., has been appointed captain, Engineers Reserve.

The Canadian Roads in January

Gross earnings of the Canadian Pacific in January were nearly \$1,000,000 greater than for the same month last year, yet net fell below that of January, 1926. The net for January is \$291,623 below the preceding January. While gross increased by \$965,238 in January, operating expenses more than kept pace with the advance, being up \$1,256,861.

Gross earnings, operating expenses and net for January are shown in the following table, with comparison for the preceding January:

	1927	1926	Inc.
Gross	\$14,435,369	\$13,470,131	\$965,238
Oper. exp....	12,925,134	11,668,272	1,256,861
Net	\$1,510,234	\$1,801,858	\$291,623

The January statement of the Canadian National, issued early this week, shows an increase in net earnings, an increase in gross earnings and a reduction in the operating ratio. During January, 1927, the gross earnings of the Canadian National, including the Grand Trunk lines in the United States, reached a total of \$20,168,259, compared with \$18,701,154 in January, 1926, an increase of \$1,467,104. During January, 1927, the operating expenses amounted to \$18,133,905, as compared with \$16,979,772 in January, 1926, an increase of \$1,161,132. Net earnings in January, 1927, amounted to \$2,034,353, as against net earnings in January, 1926, of \$1,728,381, an increase of \$305,971 in favor of January of the current year and equivalent to a gain of 17.70 per cent in net earnings.

A final statement regarding the railway operating revenues and railway operating expenses of the Canadian National during the year 1926 is also issued, complementing the preliminary statement previously issued, and which indicated a net operating revenue of \$46,400,000. The final statement shows that the net revenue from railway operations in 1926 amounts to \$46,483,192, and this figure compares with \$32,264,414, the net operating revenue of 1925.

These totals exclude the revenues and expenses of the Central Vermont, and when these are added to the net revenue from railway operations of all lines in Canada and the United States during 1926 amount to \$48,225,029, as compared with similar revenues during 1925 of \$33,443,298.

The following summarizes the financial statements of the system since the amalgamation, excluding figures for the Central Vermont:

	Oper. rev.	Net
1922	\$32,132,280	\$3,008,625
1923	253,135,487	20,430,649
1924	235,588,182	17,244,251
1925	244,971,202	32,264,414
1926	266,187,825	46,483,192

Mechanical Division Announces Program for June Meeting

The program for the convention of the American Railway Association, Division V—Mechanical, which will be held June 7, 8, 9 and 10 at the Windsor Hotel, Montreal, Quebec, has just been announced. With morning and afternoon sessions dur-

ing the first three days, the convention will cover as much ground as is covered with the six-day programs at Atlantic City. The program is as follows:

FIRST DAY—JUNE 7

Invocation by Canon Shafford, Church of St. James the Apostle, Church of England.
Welcome—Mayor Martin of the City of Montreal.
Address by Premier King of the Dominion of Canada.
Response by R. H. Ashton, president, A. R. A.
Address, "The Man Problem," by Samuel O. Dunn, editor, *Railway Age*.
Address by L. K. Silcox, chairman of the Mechanical Division and general superintendent motive power, C. M. & St. P.
Action on minutes of 1926 annual meeting.
Appointment of committees on subjects, resolutions, correspondence, etc.
Unfinished business.
New business.
Report of General Committee.
Discussion of reports on nominations; Design of Shops and Terminals; Couplers and Draft gears; Specifications and Tests for Materials;

Brakes and Brake Equipment; Lubrication for Cars and Locomotives.

SECOND DAY—JUNE 8

Addresses by Hon. Frank McManamy, Interstate Commerce Commissioner, and M. J. Gormley, chairman, Car Service Division, A. R. A.
Individual paper on Railway Motor Transport with Particular Reference to the Mechanical Problems, by F. J. Swentzel, mechanical superintendent, New England Transportation Company.
Discussion of report on Automotive Rolling Stock.
Individual paper on Passenger and Freight Car Design, by V. Willoughby, general mechanical engineer, American Car & Foundry Company.
Discussion of reports on Car Construction; Arbitration; Prices for Labor and Materials; Tank Cars; Loading Rules; Safety Appliances (including report from H. A. Johnson, director of research).

THIRD DAY—JUNE 9

Address by A. G. Pack, chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission.

Individual paper on Oil Engines for Oil Engine Locomotives, by A. I. Lipetz, consulting engineer, American Locomotive Works.

Discussion of reports on Locomotive and Car Lighting, and Locomotive Design and Construction.

Individual papers on the topic, What Is Left That Has Not Been Done to Attain the Maximum Theoretical Return from the Steam Locomotive: From the standpoint of traction, by W. H. Winterrowd, vice-president, Lima Locomotive Works; from the standpoint of combustion, by L. H. Fry, Baldwin Locomotive Works.

Individual paper entitled "A Look Into the Future," by Prof. A. T. Wood, Pennsylvania State College.

Individual paper on Passenger Cars by G. E. Smart, chief of car equipment, Canadian National Railways.

Election and installation of officers.

FOURTH DAY—JUNE 10

Addresses by A. A. Potter, dean of engineering, Purdue University, and Prof. W. J. Cunningham, Harvard University.
Discussion of report on electric rolling stock.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 185 Steam Railways, Including 13 Switching and Terminal Companies*

Item	United States		Eastern District		Pacohontas Region		Southern Region		Western District	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Average number of miles operated	237,103.74	236,633.85	59,328.11	59,451.44	5,555.09	5,552.64	39,173.83	38,910.00	133,046.71	132,719.77
Revenues:										
Freight	\$384,107,717	\$379,509,250	\$172,490,243	\$162,899,039	\$22,120,982	\$19,499,367	\$53,530,781	\$56,381,723	\$135,965,711	\$140,729,121
Passenger	89,621,666	92,036,773	44,166,928	43,312,812	1,974,630	2,078,652	12,952,011	16,145,155	30,528,097	30,500,154
Mail	9,815,180	9,851,758	3,695,200	3,665,345	230,873	215,883	1,422,557	1,408,912	4,476,550	4,561,618
Express	14,519,408	14,551,968	6,582,973	7,100,688	329,658	322,267	1,985,922	1,323,136	5,620,855	5,805,877
All other transportation	16,879,182	17,128,855	9,084,287	9,242,105	280,241	254,583	1,156,253	1,155,156	6,358,401	6,477,011
Incidental	10,813,484	10,382,308	5,618,101	5,276,454	527,534	391,683	1,275,641	1,530,704	3,392,208	3,183,467
Joint facility—Cr.	1,157,589	965,727	469,554	309,408	22,341	27,896	135,545	172,022	530,149	456,401
Joint facility—Dr.	428,196	296,244	148,988	54,571	2,040	3,285	34,901	33,939	242,267	204,449
Ry. operat'g revenues	526,486,030	524,130,395	241,958,298	231,751,280	25,474,219	22,787,046	72,423,809	78,082,869	186,629,704	191,309,200
Expenses:										
Maintenance of way and structures	69,857,151	63,771,958	31,205,994	29,045,793	3,386,140	2,635,743	10,231,217	9,273,468	25,033,800	22,816,954
Maintenance of equipm't	109,416,850	108,605,809	54,330,193	52,590,544	4,882,726	4,792,996	14,339,831	14,503,346	35,864,100	36,718,923
Traffic	10,136,224	9,481,437	3,693,992	3,427,380	276,201	245,907	1,910,040	1,939,192	4,255,991	3,868,958
Transportation	198,627,476	189,283,873	96,983,133	87,915,686	7,135,483	6,374,883	25,762,298	27,375,995	68,746,562	67,617,309
Miscellaneous operat'ns	4,641,460	4,616,326	2,326,330	2,157,400	86,594	96,263	461,146	693,453	1,767,390	1,669,564
General	16,819,244	15,593,115	7,823,687	7,168,845	529,552	488,307	2,182,634	1,965,500	6,283,371	5,970,463
Transportation for investment—Cr.	2,196,510	1,753,203	671,228	303,442	34,094	47,172	353,023	308,246	1,138,165	1,094,343
Ry. operat'g expenses	407,301,895	389,599,309	195,692,101	182,001,846	16,262,602	14,586,927	54,534,143	55,442,708	140,813,049	137,567,828
Net revenue from railway operations	119,184,135	134,531,086	46,266,197	49,749,434	9,211,617	8,200,119	17,889,666	22,640,161	45,816,655	53,941,372
Railway tax accruals	30,100,562	32,057,380	11,602,313	10,716,618	2,532,010	2,429,694	4,382,044	5,035,103	11,584,195	13,875,965
Uncollectible ry. rev's	595,852	259,114	285,837	95,144	6,272	3,643	46,186	40,198	70,101	120,129
Ry. operating income	88,687,721	102,214,592	34,378,047	38,937,672	6,685,879	5,766,782	13,461,436	17,564,860	34,162,359	39,945,278
Equipm't rents—Dr. bal.	6,042,723	6,129,671	3,333,626	2,814,658	434,277	591,340	527,218	1,778,912	2,528,158	2,127,441
Joint facility rent—Dr. balance	1,751,821	1,476,463	927,013	501,927	58,118	26,644	155,272	88,209	611,418	859,683
Net railway operating income	80,893,175	94,608,458	30,117,408	35,621,087	6,974,038	6,331,478	12,778,946	15,697,739	31,022,783	36,958,154
Ratio of expenses to revenues (per cent) ..	77.36	74.33	80.88	78.53	63.84	64.01	75.30	71.00	75.45	71.83
FOR TWELVE MONTHS ENDED WITH DECEMBER, 1926 AND 1925										
Average number of miles operated	236,706.13	236,361.46	59,379.26	59,543.16	5,550.45	5,542.60	38,973.31	38,737.28	132,803.11	132,538.42
Revenues:										
Freight	4,808,768,775	4,552,525,696	2,123,354,610	1,991,526,149	254,927,793	224,793,515	660,307,560	630,702,061	1,770,178,812	1,705,503,971
Passenger	1,042,981,164	1,056,265,169	524,167,863	519,484,112	22,027,472	23,080,737	151,995,996	158,458,619	344,789,833	355,241,701
Mail	96,133,509	97,065,380	36,582,390	37,052,304	2,057,570	2,475,736	14,360,443	14,028,899	42,733,104	43,508,441
Express	149,038,256	145,345,233	70,571,005	70,365,020	3,286,575	3,373,083	19,735,451	19,524,078	55,445,225	52,083,052
All other transportation	208,250,757	200,523,611	117,220,726	113,332,059	2,810,914	2,505,412	12,705,296	12,045,333	75,513,821	72,640,807
Incidental	134,885,072	126,887,121	67,636,967	62,979,471	5,403,157	4,169,215	15,769,232	15,115,125	46,075,716	44,623,310
Joint facility—Cr.	13,439,661	11,096,771	5,377,754	4,465,387	176,908	202,462	1,702,255	1,676,103	6,182,744	4,752,819
Joint facility—Dr.	4,930,605	3,105,462	1,633,462	957,525	27,043	27,643	413,914	416,885	2,856,186	1,703,409
Ry. operat'g revenues	6,448,566,589	6,186,603,519	2,943,277,853	2,798,246,977	291,063,346	260,572,517	876,162,321	851,133,333	2,338,063,069	2,276,650,692
Expenses:										
Maintenance of way and structures	874,244,048	824,320,083	373,203,192	352,092,962	39,857,536	37,958,540	127,852,713	118,559,852	333,330,607	315,708,729
Maintenance of equipm't	1,291,919,172	1,268,863,685	627,791,493	610,380,356	58,463,636	59,035,551	169,818,642	162,739,478	435,845,401	436,708,300
Traffic	114,761,660	106,136,437	42,167,133	39,337,665	3,016,849	2,763,676	20,596,963	19,225,753	48,980,715	44,809,343
Transportation	2,209,245,908	2,165,181,535	1,048,816,149	1,012,134,964	76,172,161	71,542,043	301,695,168	292,435,774	782,562,430	789,068,754
Miscellaneous operat'ns	56,347,272	54,110,662	26,251,603	24,642,170	1,074,978	1,073,294	6,582,719	6,597,717	22,437,972	21,797,481
General	185,773,808	176,862,375	85,058,318	79,814,943	6,124,147	5,618,785	24,255,471	22,730,106	70,335,872	68,698,541
Transportation for investment—Cr.	17,269,990	13,232,992	2,758,786	2,077,160	615,579	689,771	3,064,764	2,348,441	10,830,861	8,117,620
Ry. operat'g expenses	4,715,021,878	4,582,241,785	2,200,529,102	2,116,325,900	184,093,728	177,302,118	647,736,912	619,940,239	1,682,662,136	1,668,673,528
Net revenue from railway operations	1,733,544,711	1,604,361,734	742,748,751	681,921,077	106,969,618	83,270,399	228,425,409	231,193,094	655,400,933	607,977,164
Railway tax accruals	394,243,640	363,484,919	162,118,797	146,112,388	21,863,273	17,529,124	54,163,880	51,280,258	156,097,690	148,563,149
Uncollectible ry. rev's	1,863,264	1,935,538	1,003,055	907,271	28,714	80,834	231,734	244,678	599,761	702,755
Ry. operating income	1,337,437,807	1,238,941,277	579,626,899	534,901,418	85,077,631	65,660,441	174,029,795	179,668,158	498,703,482	458,711,260
Equipm't rents—Dr. bal.	82,041,723	78,069,182	43,864,414	40,743,744	6,530,055	6,628,109	9,947,162	10,189,410	34,760,202	34,064,137
Joint facility rent—Dr. balance	23,605,155	22,239,775	11,134,883	9,776,572	1,154,829	1,044,662	1,423,886	1,295,023	9,891,557	10,123,518
Net railway operating income	1,231,790,929	1,138,632,320	524,627,602	484,381,102	90,452,857	71,543,888	162,658,747	168,183,725	454,051,723	414,523,605
Ratio of expenses to revenues (per cent) ..	73.12	74.07	74.76	75.63	63.25	68.04	73.93	72.84	71.97	73.30

* Includes \$3,307,220 sleeping and parlor car surcharge. b Includes \$3,467,132 sleeping and parlor car surcharge. * Data for the Kansas, Oklahoma & Gulf were not available in time for inclusion in this statement. c Includes \$41,492,339 sleeping and parlor car surcharge. d Deficit or other reverse item. e Includes \$39,965,864 sleeping and parlor car surcharge.

Individual paper entitled "A Review of Progress in the Development of Mechanical Department in Locomotive Service and the Possibilities of Thereby Reducing Waste and Increasing Power," by Dr. W. F. M. Goss, affiliated member.

Discussion of report on utilization of locomotives.

The first three days' sessions will be called to order at 9:30 a.m. The fourth day's session will be called to order at 9 a.m., and final adjournment is scheduled for 12:30 p.m.

Little Railway Legislation in Sixty-Ninth Congress

The second session of the Sixty-Ninth Congress was brought to a close on March 4 leaving something like 200 bills and resolutions relating to railways and transportation expiring in the pigeon-holes of the committees to which they were referred, so that they will have to be reintroduced if any of them are to be considered at the next session. As this paper goes to press the record is not quite complete, as one or two bills of minor importance may be acted on in the last day of the session, but all hope of passing any of the more important bills was given up long ago.

The House committee on interstate and foreign commerce had rather expected to report out the revised Parker consolidation bill before the end of the session but at a meeting on February 26 it was decided that it would be possible only to report progress, as the result of its consideration of the bill in executive session, and it was expected that a bill embodying the changes made so far would be introduced before the end of the session as a basis for study before the next session.

The bill to abolish the Pullman surcharge was reached on the Senate calendar on February 28 at a night session when the Senate was considering unobjectioned bills. Senator Robinson, of Arkansas, who had introduced it, made an effort to have the bill considered, but it went over on an objection by Senator Fess, of Ohio.

Senator Pittman's bill to amend section 15a of the interstate commerce act to exempt certain short line railroads from recapture of excess earnings also went over on objection by Senator Reed of Pennsylvania, as did the Newton bill, passed by the House, including several miscellaneous amendments to the act.

President Coolidge has signed the bill to authorize railroads to transport a blind person and accompanying guide for one fare.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.**—T. L. Burton, 145 Broadway, New York City. Next meeting, May 24-27, 1927, Mayflower Hotel, Washington, D. C. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—J. H. Ainsworth, A. M. Byers Co., 410 Union Bank Bldg., Pittsburgh, Pa. Meets with Air Brake Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—J. D. Gowin, 112 W. Adams St., Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncorn, 332 S. Michigan Ave., Chicago. Next meeting, June 21-23, 1927, Mackinac Island, Mich.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next annual meeting, November, 1927, Havana, Cuba.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Annual convention, June 21-24, 1927, San Francisco.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—C. E. Bell, Seaboard Air Line, Washington, D. C. Next meeting, October, 1927, Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 292 Madison Ave., New York. Annual convention, Oct. 3-7, 1927, Cleveland Public Auditorium, Cleveland, Ohio.

AMERICAN RAILROAD MASTER TINNERS' COPPER-SMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borchardt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operations.—J. C. Caviston, 30 Vesey St., New York.

Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Annual convention, May 10-14, 1927, Memphis, Tenn.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., N. Y. Next meeting, May 16-17, Hotel Jefferson, Richmond, Va.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 21-23, San Francisco, Calif.

Safety Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, April 19-21, New Palmer House, Chicago.

Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents).—W. A. Fairbanks, 30 Vesey St., New York. Next meeting, Oct. 4-6, The Willard, Washington, D. C.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago. Annual meeting, April 7, Ambassador Hotel, Atlantic City, N. J.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Annual convention, March 8-10, 1927, New Palmer House, Chicago. Exhibit by National Railway Appliances Association, March 7-10.

Construction and Maintenance Section.—E. H. Fritch. Next meeting, March 8-10, 1927, New Palmer House, Chicago.

Electrical Section.—E. H. Fritch. Next meeting, March 8-10, New Palmer House, Chicago.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York. Annual meeting, March 7-8, 1927, Palmer House, Chicago.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 7-9, 1927, Hotel Windsor, Montreal, Que. No exhibits at this meeting.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual convention, Sept. 13-15, 1927, Hotel Kentucky, Louisville, Ky.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Next meeting, May 24-26, 1927, Palmer House, Chicago. No exhibits at this meeting.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 14-17, Quebec, Canada.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILROAD BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Exhibit by Bridge and Building Supply Men's Association. Annual convention, October 18-20, 1927, Hotel Nicolet, Minneapolis, Minn.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—H. W. Beyerly, General Immigration Agent, Northern Pacific, St. Paul, Minn. Annual meeting, June 8-10, 1927, Hotel Statler, Detroit, Mich.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railroad Association Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago.

Next annual convention, March 8-10, 1927, New Palmer House, Chicago. Exhibit by National Railway Appliances Association, March 7-10.

AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.—Margaret T. Stevens, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, June 2 and 3, Hotel Roosevelt, New York.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M. & St. P. Ry., 11402 Calumet Ave., Chicago. Annual convention, Aug. 31, Sept. 1 and 2, 1927, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, Associate Mechanical Editor, *Railway Age*, 30 Church St., New York. Mid-west meeting, April 4-6, 1927, Kansas City, Mo. Spring meeting, May 23-26, 1927, White Sulphur Springs, W. Va.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—E. J. Stocking, 111 West Washington St., Chicago. Next annual convention, Jan. 24-26, 1928, Montreal, Que.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, April 20, 1927, New Orleans, La.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 413, C. & N. W. Station, Chicago. Annual meeting, Oct. 25-28, 1927, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—D. A. Hultgren, Massey Concrete Products Corp., Chicago. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Chilton St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual convention, September, 1927.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—B. S. Johnson, W. H. Miner, Inc., 309 S. La Salle St., Chicago.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 311 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND STEAM RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next convention, August 16-18, 1927, Hotel Lafayette, Buffalo, N. Y. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. R. Walsh, Ewald Iron Co., Louisville, Ky.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Annual convention, May 10-13, 1927, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 6-9, 1927, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—W. J. Dickinson, 189 W. Madison St., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York. Next annual convention, May 3-6, 1927, Hotel Sherman, Chicago.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—E. A. Morse, vice-president. Potosi Tie & Lumber Co., St. Louis, Mo. Next annual convention, 1928, Hot Springs, Ark.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Annual meeting, October 17, 1927, Dallas, Tex.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, 845 South Wabash Ave., Chicago. Annual exhibition, March 7-10, 1927, at convention of American Railway Engineering Association.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. E. Long, Superintendent Safety, D. & H., Albany, N. Y.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

RAILROAD MOTOR TRANSPORT CONFERENCE.—R. H. Newcomb, 492 South Station, Boston, Mass.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, June 7-10, 1927, Cosmopolitan Hotel, Denver, Colo.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers, Oct. 25-28, Hotel Sherman, Chicago.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association, September, 1927.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 11-13, 1927.

RAILWAY REAL ESTATE ASSOCIATION.—C. C. Marlor, 1243 Transportation Bldg., Chicago.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, A. R. A. No exhibits in 1927.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual convention, September 20-22, 1927, Buffalo, N. Y. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A., Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meets semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association, September, 1927.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Gen. Supt. R. S., New York Central, Buffalo, N. Y. Annual meeting, September, 1927, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Traffic

The thirteenth regular meeting of the Ohio Valley Shippers' Advisory Board will be held at Columbus, Ohio, on March 8.

The traffic department of the Traffic Managers' Committee of the National Automobile Chamber of Commerce will make a study of the rate elements and traffic characteristics applied by the railroads on automobile and their parts, the position of these commodities in the freight classifications and tariffs, and the relation of shipments of this character to other commodities.

The Canadian National, in conjunction with the University of Saskatchewan, is operating a lecture car over its lines in which cereal varieties, tillage operations, fall cultivation, summer fallow, crop rotations, the importance of good seed, the value of mixed farming, and beautification of the farmstead, are discussed. In addition, talks are being given on the relationship of livestock to agriculture.

The Interstate Commerce Commission on February 25 issued its decision in the eastern salt cases, finding not justified proposed increases in rates on rock salt, in bulk, in carloads, incident to the establishment of the uniform carload minimum. The commission also found unreasonable the present rates on salt from producing points in Michigan, Ohio and New York to destinations in trunk line territory and New England and prescribed reasonable rates for the future.

The Interstate Commerce Commission has announced a hearing to be held at Portland, Ore., March 14, on the application of the Great Northern, Northern Pacific and Oregon-Washington for approval of a contract continuing for three years the contract previously approved by the commission providing for the establishment of joint passenger-train service and division of earnings between Seattle, Tacoma and Portland. The present contract expires March 31. The hearing will be before Examiner Beach.

The San Joaquin Flyer

The Southern Pacific has inaugurated a new train, the San Joaquin Flyer, between San Francisco, Cal., and Los Angeles. The new train leaves San Francisco Ferry at 8:40 a. m. and arrives in Los Angeles at 11:15 p. m. Returning, it leaves Los Angeles at 7:50 a. m. and arrives in San Francisco at 10:05 p. m.

A Basis for Grain Rate Revisions

Five principles which will be urged upon the Interstate Commerce Commission for use in formulating a new grain-rate schedule were agreed upon by shippers, millers, and state public service commissions at a conference at Kansas City, Mo., on February 24. The five principles adopted were

submitted by the Western Terminal Grain Markets traffic committee and state: 1. That rates should be constructed to allow the maximum degree of competition within the grain trade and among the carriers and to give the producer the greatest possible number of markets. 2. That a general readjustment of rates upon the basis of mileage or with primary regard to distance is not feasible or desirable; that the grain and milling trade is peculiar to itself and not adaptable to the mileage scale system. 3. That the condition of the trade in the southwest is such that it is desirable to adjust rates from all points of origin. 4. That the system of groups of destination points in Louisiana and Texas, as worked out in a recent tariff by the carriers, is sound and defensible; that this same system of grouping should be applied from all originating points and the differentials between the various destination groups should be uniform from all originating points. 5. That when practicable, rates through important grain markets should break into definitely known inbound and outbound components.

Anthracite Rates Reduced

A revision of freight rates on anthracite coal from mines in Pennsylvania to points in northern New York was announced, on March 1, to go into effect June 20, in a supplemental report by the Interstate Commerce Commission in its anthracite rate investigation. Present rates were found unreasonable and to some points unduly prejudicial; increases proposed by the railroads were found not justified, while the reductions they proposed were found justified in part. The plan of the carriers for reducing the rate disparities over single-line and joint-line routes contemplated increases in the single-line rates but mostly reductions in the joint-line rates. This was a compromise plan, as some of the carriers felt that no changes should be made in the present rates.

"It is of importance to the consuming public," the report, by Commissioner Campbell, says, "that access be had to the greatest possible number of mines, especially in times of emergency. Where, as here, however, the distances over a number of the routes are unduly circuitous, fairness demands that such routes be disregarded in fixing reasonable rates over routes which are not unduly circuitous." The point is also made that for competitive reasons it is highly desirable that the rate paid by a retail dealer located on one route be as nearly as may be the same as the rate paid by a dealer located on another route at the same point.

The commission's findings as to the specific rates are as follows:

We find that the proposed increased rates have not been justified. We further find that the existing adjustment of rates on prepared sizes of anthracite coal from the Wyoming, Lehigh, and Schuylkill regions to Albany, Troy, Mechanicsville,

Utica, Syracuse, Geneva, Hornell, and other points taking the same rates on prepared sizes over one or more routes considered as a whole is unjust, unreasonable, and unduly prejudicial and preferential in the relation of such rates to each other. We further find that for the future the just and reasonable rates on prepared sizes of anthracite coal to Albany, Troy, Mechanicsville, Utica, Syracuse, Geneva, Hornell, and other points taking the same rates on prepared sizes over one or more routes to be hereafter observed will be, (a) \$2.65 per ton of 2,240 lb. from all points in the Wyoming region on the line of each carrier serving that region, except the Central of New Jersey, the Lehigh Valley, and the Pennsylvania, over all single-line routes, and also over the shortest tariff route to each destination, determined by averaging the distances from all mines in the Wyoming region on each carrier to each destination; and (b) \$2.88 per ton from all points in the Wyoming, Lehigh, and Schuylkill regions on the line of each carrier serving any of those regions, over all routes over which a rate of \$2.88 per ton is proposed under the suspended schedules, other than those over which a rate lower than \$2.88 will apply under our conclusions herein.

The record affords no satisfactory basis for prescribing specific rates on pea and smaller sizes, or a definite relationship between the rates on those sizes and on prepared sizes, to the Albany-Utica-Syracuse group. We assume that respondents will continue, in the adjustment of these rates resulting under the findings herein, the same relationships between the rates on prepared sizes and on pea and smaller sizes as exist in the present adjustment.

We further find that, except where inconsistent with the preceding findings, the proposed reduced rates have been justified.

Our findings in *Anthracite Coal Investigation*, 104 I.C.C. 514, to the extent that they are inconsistent with the findings herein, are reversed.

We find that the rate of \$3.15 on prepared sizes to Rochester except over the routes of (a) the Pennsylvania direct, (b) the Reading, Milton, Pa., and the Pennsylvania, (c) the Delaware & Hudson, Schenectady, N. Y., and New York Central, and (d) the Reading, New York Central, Clearfield, Pa., and Buffalo, Rochester & Pittsburgh, is, and for the future will be, unreasonable to the extent that it exceeds, or may exceed, \$3.02 per ton. We further find that the rate of \$2.77 on pea and smaller sizes to Rochester, except over the route of the Delaware & Hudson, Schenectady, and the New York Central beyond, is, and for the future will be, unreasonable to the extent that it exceeds, or may exceed, \$2.65 per ton.

We find that the rates on prepared sizes and on pea and smaller sizes to Carthage and Clayton from the same mines and over the same routes from and over which a rate of \$3.28 now applies on prepared sizes to Watertown, including also the route of the New York Central through Glenfield, N. Y., are, and for the future will be, unreasonable to the extent that they exceed, or, may exceed, respectively, \$3.28 and \$2.77 per ton to Carthage, and \$3.41 and \$2.88 per ton to Clayton.

Equipment and Supplies

Locomotives

THE CHICAGO & NORTH WESTERN is inquiring for a 60-ton Diesel electric switching locomotive.

PICKANDS MATHER & Co., has ordered two six-wheel switching locomotives from the Lima Locomotive Works.

THE FERROCARRIL DE ANTIOQUIA (Colombia) has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

Freight Cars

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 150 caboose cars.

THE NORFOLK & WESTERN is asking for prices on repairing and remodeling 1,000 hopper cars.

THE FRUIT GROWERS EXPRESS has ordered 100 underframes from the Ryan Car Company.

SWIFT & Co. has given an order for 300 steel underframes to the Pressed Steel Car Company for refrigerator cars, to be built in its own shops.

THE NORTHERN PACIFIC has ordered 300 gondola cars from the Ryan Car Company. Inquiry for this equipment was reported in the *Railway Age* of January 15.

THE CANADIAN NATIONAL has ordered 100 ballast cars from the Rodger Ballast Car Company. Inquiry for this equipment was reported in the *Railway Age* of January 15.

THE ATCHISON, TOPEKA & SANTA FE has ordered 50 ballast cars from the Rodger Ballast Car Company. Inquiry for 50 ballast cars was reported in the *Railway Age* of February 5.

THE CHESAPEAKE & OHIO has given contracts for rebuilding 250 steel hopper bottom gondola car bodies to the American Car & Foundry Company and 250 to the Richmond Car Works.

THE OLIVER IRON MINING COMPANY has ordered 35 air dump cars from the Magor Car Corporation and 20 from the Differential Steel Car Company. Inquiry for from 25 to 50 air dump cars was reported in the *Railway Age* of February 26.

THE TEXAS COMPANY has ordered 100 tank cars of 8,000-gal. capacity and 100 of 10,000-gal. capacity from the American Car & Foundry Company, and 300 of 8,000-gal. capacity and 100 of 10,000-gal. capacity from the Pennsylvania Car Company.

THE BANGOR & ARROSTOOK has ordered 100 underframes and superstructures from the Standard Steel Car Com-

pany for box cars to be built in the railroad company's shops. Inquiry for this equipment was reported in the *Railway Age* of February 12.

THE CHICAGO & NORTH WESTERN has ordered 650 underframes and superstructures from the Illinois Car & Manufacturing Company and 685 underframes and superstructures from the Siems-Stemmel Company. Inquiry for this equipment was reported in the *Railway Age* of February 12.

Passenger Cars

THE FRANKFORT & CINCINNATI has ordered one gasoline rail motor car from the J. G. Brill Company.

THE UNITED RAILWAYS OF HAVANA have ordered eight 60-ft. gas-electric rail motor cars from the J. G. Brill Company.

ALASKA RAILROAD.—The United States Government has ordered one gas-electric rail motor car and one 51-ft. passenger trailer car from the J. G. Brill Company for the Alaska Railroad.

THE NEW YORK RAPID TRANSIT CORPORATION is inquiring for 50 articulated units comprising 150 subway steel car bodies, each unit including four trucks with motors which are mounted on each of the trucks.

THE ATCHISON, TOPEKA & SANTA FE has ordered two dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the issue of the *Railway Age* of December 11.

THE BALTIMORE & OHIO has ordered 10, 70-ft. combination baggage and mail cars with 15-ft. mail compartment and 5 combination baggage and mail cars with 30-ft. mail compartment from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of January 8.

Iron and Steel

THE SEABOARD AIR LINE is inquiring for 400 tons of steel.

THE PENNSYLVANIA is inquiring for 1,500 tons of steel for a terminal warehouse in Philadelphia, Pa.

THE READING COMPANY has ordered 450 tons of steel for a bridge, from the McClintic-Marshall Company.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 4,000 tons of steel from the American Bridge Company, for its Hackensack river bridge, and is inquiring for 2,200 tons of steel to be used for bridge work.

Machinery and Tools

THE MISSOURI PACIFIC has ordered one two-ton jib crane from H. D. Conkey & Co.

THE BALTIMORE & OHIO has ordered a 20-in. vertical drill press from the Niles-Bement-Pond Company.

THE DELAWARE & HUDSON has ordered two 48-in. car wheel borers from the Niles-Bement-Pond Company.

THE MONONGAHELA RAILROAD has ordered a locomotive cylinder or dome facing machine from the Niles-Bement-Pond Company.

Signaling

THE RICHMOND, FREDERICKSBURG & POTOMAC has contracted with the Union Switch & Signal Company for the complete installation of electro-pneumatic interlocking at "AF" Tower, Alexandria, Va.; 21 functions, separated into two groups for operation from separate interlocking machines.

THE TEXAS & PACIFIC has ordered from the General Railway Signal Company material for the construction of automatic block signals between Dallas, Tex., and Fort Worth, 32 miles, and between Texarkana, Tex., and Marshall, 67 miles. This order includes 182 color-light signals, 720 relays and other material.

THE ALABAMA GREAT SOUTHERN (Southern Railway System) has ordered from the General Railway Signal Company, material with which to introduce automatic train control between Chattanooga, Tenn., and Meridian, Miss., 295 miles. Inter-mittent inductive auto-manual apparatus will be installed on 70 locomotives.

THE SHIN-KEIHAN ELECTRIC RAILWAY of Japan, acting through Mitsui & Company, of New York, has ordered from the Union Switch & Signal Company material for the installation of block signals on its line; 45 sets of color-light signals, relays, track transformers and other material, including Keystone insulated rail-joints.

THE CANADIAN NATIONAL has placed an order with the Chicago Railway Signal & Supply Company for automatic signal apparatus, to be installed between Red Bank, Ont., and Windsor, 25 miles. This order includes 69 three-indication color light signals, using the Chicago doublet lens, complete with poles, ladders and relay cases; also, 40 switch boxes, 294 relays and other materials.

Miscellaneous

THE ROYAL STATE RAILWAYS OF SIAM will receive sealed tenders until 14 o'clock May 17, for the supply of axle-boxes, bearing springs and axle guards, for goods rolling stock, B. E. 2470. Bids are to be addressed to the Administration of the Royal State Railways of Siam, Bangkok, Siam. Specifications may be obtained from C. P. Sandberg, 100 Broadway, New York, upon payment of \$4 a set.

Supply Trade

The Commonwealth Steel Company, Granite City, Ill., is constructing a shop building 100 ft. by 600 ft. in area.

The Chambersburg Engineering Company, Chambersburg, Pa., has opened an office in the Stephenson building, Detroit, Mich. Racine Ripley is manager in charge of that territory.

The Twin Harbors Lumber Company, Aberdeen, Wash., has opened an office at 549 McCormick building, Chicago, in charge of Carter H. Manny. The A. T. Herr Supply Company, Denver, Colo., has been appointed representative in that territory.

Mont C. Noble, formerly chief of the Bureau of Roads and Bridges of the Nebraska State Department of Public Works, has been appointed district engineer of the Armco Culvert & Flume Manufacturers' Association, Middletown, Ohio, in charge of a newly opened district office at Lincoln, Neb.

Howard E. Oberg is now in charge of sales engineering in the Middle West for the complete machinery line of the Billings & Spencer Company, with general office and works at Hartford, Conn., manufacturers of the Triangle B line of drop forged tools, etc. Mr. Oberg's headquarters are in the General Motors building, Detroit, Mich.

Joseph G. Worker has been appointed general sales manager and elected a director of the American Engineering Company, Philadelphia, Pa. For fifteen years Mr. Worker was associated with the Westinghouse Companies and for the last five years of this period was manager of the stoker section of the Westinghouse Electric & Manufacturing Company, at East Pittsburgh, Pa.

Arthur Simonson, sales manager of the steel foundry department of the Falk Corporation, Milwaukee, Wis., has been elected vice-president. He was born in Sheffield, England, and received his apprenticeship at the works of Edgar Allen & Co., Ltd., Sheffield. In 1900 he came to the United States as a representative of Alexander Tropenas, inventor of the side blow converter, and installed the process in various plants. Later he became general foundry superintendent of Wm. Wharton, Jr. & Co., Inc., Philadelphia, Pa., and in 1910 he entered the employ of the Falk Corporation where he has held various positions in the steel foundry. In 1916 he was appointed sales manager of the steel foundry department, which position he has held until his recent election.

The Transportation Equipment Corporation was recently organized, and will establish its office in the new Graybar building, Lexington avenue, New York City, about April 1. Thomas J.

Crowley is president, and Chester B. McLaughlin, Jr., is vice-president and treasurer. The directors include Colonel Douglas I. McKay, president of the Standard Coupler Company. Mr. Crowley is a son of the late Thomas W. Crowley, who was superintendent of the St. Lawrence division of the New York Central; he is also vice-president of the Handlan Buck Manufacturing Company, St. Louis. Mr. Crowley will continue his connection with that company, whose eastern offices are located in the Grand Central Terminal building. Mr. McLaughlin is a member of the law firm of McLaughlin & Royce. Jay Vandergrift, who has been Pennsylvania state distributor for several automobile manufacturers, will direct the sales of the company. Among the immediate activities of the Transportation Equipment Corporation will be efforts to increase in the railway field the use of Duco and other manufactures of the Chemical Products division of E. I. du Pont de Nemours Company.

American Brake Shoe & Foundry Company

The annual report of the American Brake Shoe & Foundry Company shows net profit for 1926 after charges, depreciation and allowance for taxes of \$3,029,216 equivalent after dividends on the preferred stock to \$15.04 on the no par value common stock. Net profits in 1925 were \$2,786,607 or \$13.57 a share.

The consolidated income account for 1926 compared with 1925 as follows:

Earnings	1926	1925
From operation of plants, after deducting manufacturing, administrative and selling expenses and depreciation of plants and equipment; and including dividends received on stocks of American Manganese Steel Company, Ramapo Ajax Corporation and American Brake Shoe and Foundry Company of California whose earnings are not incorporated herein and other net income less estimated federal taxes....	\$3,029,217	\$2,786,607
Dividends paid		
By the American Brake Shoe & Foundry Company:		
On preferred stock 7 per cent.....	667,695	667,695
On common stock....	947,137	829,900
	\$1,614,832	\$1,497,595
By subsidiary companies, on stock not then owned by the American Brake Shoe & Foundry Co....	150	300
	\$1,614,982	\$1,497,895
Surplus adjustments.....	\$1,414,235	\$1,288,712
	106,937	593,750
Surplus for year.....	\$1,521,172	\$694,962
Surplus at beginning of year	8,119,314	7,424,352
Surplus at end of year....	\$9,640,486	\$8,119,314

American Locomotive Company

The annual report for the year ended December 31, 1926, of the American Locomotive Company and its subsidiaries, including the earnings of the Railway Steel Spring Company from May 14, 1926, shows net profit after depreciation, allowance for taxes, etc., of \$8,015,939, equivalent after allowance for preferred dividends to \$7.44 a share on the 770,000 shares of common stock outstanding at the end of the year.

The condensed income account for 1926 compares with 1925 in the accompanying table.

President F. F. Fitzpatrick, in his remarks to stockholders reported in part as follows:

The net profits available, after deducting depreciation of \$1,511,954 on the company's plants and equipment and United States and Canadian income taxes, amounted to \$8,015,939. There was expended for additions and betterments to the plants of the company during the twelve months period \$560,479.

Although the year's operations showed a substantial improvement as compared with 1925, the rate of production of the plants during 1926 was considerably below their capacity. Published reports indicate that the railroads have in mind for 1927 liberal appropriations for improvements, a large part of which will be expended for equipment and it is, therefore, not unreasonable to expect that your company's operations for the coming year will prove satisfactory.

During the year there were paid four regular quarterly dividends of \$1.75 each per share on the preferred stock, the dividends on the preferred stock issued during the second, third and fourth quarters in connection with the reorganization plan being accrued from the date of issue to the end of the respective quarters. There was also paid on the common stock a dividend of \$2.00 per share on 500,000 shares in the first quarter, and a dividend of \$2.00 per share on 770,000 shares in each of the succeeding quarters.

The excess of current assets over current liabilities on December 31, 1926, was \$50,679,062. The company had no loans payable and had in its treasury \$32,794,330 in cash and marketable securities, of which \$17,830,087 was in United States Government obligations, \$6,183,940 in railroad equipment trust certificates, \$2,550,887 in bonds of the Canadian Government and \$6,023,391 in cash on hand and in banks.

In accordance with the company's policy of concentrating the manufacture of locomotives at the larger and more modern locomotive plants, the Cooke plant at Paterson, N. J., was permanently closed down during the year and is in process of being dismantled. Locomotives heretofore produced at the Cooke plant will, in the future, be manufactured at the Schenectady plant.

The past year has witnessed many remarkable records in freight handling by the railroads of the country. Efficient railway management is entitled to full credit for this performance. At the same time the modern steam locomotive contributed its part in no small degree. Your company is fully aware of the fact that progressive railway management of today demands the use of the most modern and efficient power units, and progress is steadily being made in the further development of the steam locomotive with this in view. Continued interest is being manifested in the three-cylinder locomotive brought out by this company, and during the past year a number of additional locomotives of this type were built and are giving very satisfactory service.

CONDENSED INCOME ACCOUNT OF AMERICAN LOCOMOTIVE COMPANY

	1926	1925
Gross earnings		\$27,773,493
Manufacturing, maintenance and administrative expenses, including interest and taxes		27,304,545
Net earnings before deducting depreciation	\$10,352,193	468,948
Depreciation on plants and equipment	1,511,954	1,312,269
	8,840,239	
Accrual for federal taxes	824,300	
Profit for the year	\$8,015,939	Def. \$843,321
Dividends—Preferred stock	\$2,280,209	
Common stock	5,620,000	7,900,209
Surplus		\$115,730

Construction

CANADIAN PACIFIC.—Plans have been prepared for the construction of a coaling station of 100 tons capacity at Poplar Point, Man.

CHICAGO & NORTHWESTERN.—This company has applied to the Interstate Commerce Commission for authority to build a three-mile branch extension near Belle Fourche, S. D.

CHICAGO & NORTH WESTERN.—This company has reached an agreement with the city of Madison, Wis., for the construction of a viaduct over its tracks at Olin avenue, Madison. The expense of building this structure, about \$200,000, will be borne by the railroad.

CHICAGO, MILWAUKEE & ST. PAUL.—The contract for the construction of a combined hotel and station at Gallatin Gateway, Mont., to cost about \$200,000, has been awarded to Tufel and Carlson, Seattle, Wash.

GULF, COLORADO & SANTA FE.—Plans have been prepared for the construction of a 115-ft. turntable at Brownwood, Tex. Improvements at this point also include the enlargement of the freight yards to provide for the handling of 750 cars.

Authorization has been given for the construction of a second main track between Panhandle, Tex., and Pampa, 27 miles.

ELGIN, JOLIET & EASTERN.—Bids were received until March 3 for the construction of a one-story brick and concrete dormitory at South Chicago, estimated to involve an expenditure of about \$25,000.

LOUISVILLE & NASHVILLE.—This company contemplates the construction of an office building at Latonia, Ky., and expansion of its yards at De Coursey, Ky., and Spring Lake.

MISSOURI-KANSAS-TEXAS.—This company contemplates the construction of a storage building at Parsons, Kan., to cost about \$40,000.

THE NEW YORK CENTRAL has contracted with the McClintic-Marshall Company for the fabrication and erection of the steel work required for a new office building over Park avenue, between Forty-fifth and Forty-sixth streets, New York City, involving the purchase of approximately 27,000 tons of steel. The contract provides for the steel work to be erected 60 ft. above the street level by October 1, 1927, and to be completely erected by February 1, 1928.

PENNSYLVANIA.—Bids have closed for the construction of a two-story trainmen's dormitory at Hawthorne yard, Indianapolis, Ind. The building, which will have outside dimensions of 100 ft. by 100 ft., is expected to cost about \$40,000.

Railway Finance

BOSTON & MAINE.—Branch Abandonments.—The Interstate Commerce Commission has issued a certificate authorizing the Boston & Maine to abandon that portion of its Reformatory branch between Concord, Mass., and Reformatory, 2.6 miles, and that portion of its Essex branch between Essex, Mass., and Conomo, 0.5 miles.

At the same time it refused the permission to the Boston & Maine for the abandonment of that portion of its Reformatory branch between Bedford and Concord, 4.4 miles; that portion of its Lexington branch between Bedford, Mass., and Billerica, 8 miles; that portion of its Essex branch between Hamilton-Wenham station, Mass., and Essex, 5.5 miles and its Ashburnham branch between South Ash-

burnham, Mass., and Ashburnham, 2.7 miles.

The railroad represented in each instant that there was a substantial loss from operation, that there was an absence of indications of increased traffic and that local transportation needs can be met adequately by other means. It was also stated that these applications were part of a comprehensive plan to reduce the proportion of unprofitable mileage of the Boston & Maine system. The commission in its decision gave consideration to the greatly improved earnings of the carrier and the expectation that the Boston & Maine would receive benefits from many operating improvements, from the extension of large bond maturities and improved credit but it stated, nevertheless, that the road's problem in regard to short branch lines of low traffic density still exists. On the other hand, it said that the local results of abandonment of rail service must be weighed against the larger effect upon the general community and upon the railroad system whose prosperity is so closely connected with that of New England. Objections to the granting of these applications were filed by the several towns affected, by various institutions and industries and by many individuals. The cases were argued before the Massachusetts Department of Public Utilities and the depart-

ment reported to the commission its views and recommendations in connection with each application. In each case the recommendations of the Massachusetts department were followed.

CANADIAN NATIONAL.—Grand Trunk Pacific Debenture Stock.—A notice to the holders of Grand Trunk Pacific 4 per cent debenture stock registered on the Montreal and New York Stock Exchanges and issued from the office of the secretary, Canadian National Railways, states that the scheme of arrangement submitted to the stockholders in August, last, and subsequently assented to by the holders of 90 per cent of the total stock outstanding in the hands of the public, has been approved by the passing of a special act by the Canadian Parliament, which act received royal assent on February 18, last.

In accordance with the scheme of arrangement, the registers of the Grand Trunk Pacific Railway Company 4 per cent perpetual debenture stock will be closed against transfers of that stock on March 21, 1927, before commencement of business; and no transfers of that stock can be accepted for registration on or after that date.

The notice states that the registers of the Canadian National new guaranteed debenture stock, to be issued in exchange for the Grand Trunk Pacific Railway Company 4 per cent perpetual debenture stock in accordance with the approved scheme of arrangement, will be closed against the registration of transfers of the new stock on and from March 21 to April 10, 1927, inclusive, for the preparation of warrants in respect of the six months' interest accruing from July 1, 1926; that interest warrants will be mailed on or about April 11, 1927; that the certificates in respect to the Canadian National new guaranteed stock will be issued on or as soon as possible after April 11, 1927, in exchange for certificates of the Grand Trunk Pacific Railway Company 4 per cent perpetual debenture stock.

Holders of certificates for said stock registered on the Montreal and New York registers are requested to forward such certificates as early as possible after March 31, 1927, to the Registrar, Canadian National Railways, 360 McGill street, Montreal, in order that the exchange of certificates may be effected with as little delay as possible. Pending the preparation of the new engraved certificates the probability is that transferable registered scrip certificates will be issued exchangeable in due course for engraved certificates.

Notice will be given in due course as to when the engraved certificates will be ready for issue. In the meantime the scrip certificates will be transferable in the usual way; and on surrender of any such scrip certificate, with proper form of transfer, a new form of scrip certificate will be issued in favor of the transferee.

If a holder of stock registered on the Montreal or New York registers prefers to retain his Grand Trunk Pacific stock certificate till the new Canadian National engraved certificate is ready, the Pacific stock certificate need not be sent in till after the notice above mentioned has been issued.

CENTRAL OF GEORGIA.—1926 Earnings.—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$3,675,393 equivalent to \$18.37 per share on the common stock. Net income in 1925 was \$3,105,113 or \$15.52 a share.

CHESAPEAKE & OHIO.—To Issue Stock.—W. J. Harahan, president, has addressed a letter to stockholders reviewing the formulation of the plan for the acquisition by stock control of the Erie and Pere Marquette and announcing the company's intention to issue \$59,502,400 additional common stock which it is proposed to offer at par for cash to present stockholders to the extent of 50 per cent of the par amount of their respective holdings. After outlining the steps thus far taken, the statement continues:

The foregoing made it necessary to determine upon a financial plan and an estimate was made as to the probable earnings, expenses and net income of the company for the next five years, consideration was given to maturing obligations and capital requirements and it was decided that it was necessary to secure for present use, in addition to other resources which are now or will be available, funds through issue by the company of approximately sixty million dollars of its capital stock. It was felt that the future development of the financial structure of the property would be best conserved by obtaining the funds required by the issuance of additional common stock, to reimburse the company in respect to moneys heretofore expended for the acquisition of subsidiary companies, for additions and betterments, construction and extension of lines. The issuance of this additional common stock will greatly increase the company's proportionate amount of capital stock with respect to total capitalization, thus decreasing the proportionate amount of funded debt and fixed charges.

In view of the fact that the amount of common stock which will be outstanding after conversion of the present preferred stock will be \$119,004,800, it is proposed to offer the entire \$59,502,400 additional shares (\$59,502,400 par value) of common capital stock at par for cash pro rata to the holders of the common stock of the company to the extent of 50 per cent of the par amount of their respective holdings.

The matter has been approached from the standpoint of the interests of the public and the stockholders, with the hope that in some measure the duty which every director of every railroad owes to the company to make it more capable in public service, may be translated into accomplishment.

It is believed that the territory served by the Erie and Pere Marquette will welcome the association with the added facilities furnished by the C. & O. It is further believed that the traffic of the carriers involved will be found reciprocal and that what is proposed will constitute a decided step forward for all of the carriers concerned. There can be no doubt that the shippers on our lines will be greatly benefitted and as to the C. & O. stockholders they may rest assured that the directors of the company and the executive officers, who are in daily and close contact with all of the company's affairs, have in mind only the stockholders' interests, service to the public and the development of this great property.

Our entire organization believes that such stock control leads to the growth and completion of a fourth great eastern transportation system, and it is hoped that the Erie and Pere Marquette and their stockholders will share this belief.

The C. & O. must go forward along prudent yet progressive business lines or ultimately be throttled and thwarted in its growth by failure to take advantage at once of its opportunities.

If the C. & O. is to share in the major grouping of railroads in the eastern district it must act at once, and the stockholders may rest assured that the directors have considered these matters not only from the standpoint of future interests and actual necessities of the company but from the standpoint of continuance of a liberal dividend policy and there is involved no backward step in that direction.

CHICAGO & NORTH WESTERN.—Bonds.—The Interstate Commerce Commission has authorized an issue of \$20,572,000 of first and refunding mortgage 4½ per cent gold bonds, to be sold at 92½.

CHICAGO MILWAUKEE & ST. PAUL.—To Oppose Northern Pacific-Great Northern Merger.—The Chicago, Milwaukee &

St. Paul has formally announced that it will oppose the proposed merger of the Northern Pacific and Great Northern.

The official statement issued by H. E. Byram for the receivers of the St. Paul lists five major reasons for their opposition, as follows:

1. That the merger would result in establishing a dominant transportation group in the Northwest which would create and permanently maintain unequal and unbalanced competition and is therefore definitely opposed to the public interest.
2. That it would preclude or prevent future necessary unifications.
3. That the economies promised could be realized in greater measure by other possible unifications.
4. That the proposed merger is opposed in spirit and in fact to the Interstate Commerce Commission's tentative plans for grouping American railroads.
5. That while called a plan of unification it is in all essential aspects an unlawful consolidation.

The formal statement continues:

"We believe that the merger of the St. Paul with one of the other lines serving the Northwest would offer both improved service and greater economies than those promised by the advocates of the Great Northern-Northern Pacific consolidation."

"It would do more: It would give the public the benefit of two strong competing systems and create that balanced competitive condition which is the life of better railroad service."

"For the public should realize at once that the proposed merger is in reality a consolidation of three railroads. Through their joint ownership of the Chicago, Burlington & Quincy and its subsidiaries the Great Northern and Northern Pacific would bring into their merger the former system. This would result in a solid welding together of 27,000 miles of railroad under one control. Once formed, this combination could not be dissolved."

"The St. Paul is seeking no favors and no preferences. In this controversy which has been forced upon it, the St. Paul is merely demanding just and equitable rights and reasonable consideration for itself and for the public it serves. It is not asking for help. It will be able to take care of itself and the public under any fair, comprehensive plan of unification that has the welfare of all interests and all localities fairly balanced."

"If this is the time to consider a plan to improve railroad operations in the Northwest it should be made general, comprehensive, impartial and applicable, not to a favored portion or to favored interests, but to the entire Northwest and all interests."

DELAWARE & HUDSON.—Trackage Agreement With Pennsylvania.—This company has filed with the Interstate Commerce Commission an application for authority to operate under a trackage right agreement dated February 19 over a line of the Pennsylvania from Buttonwood, Pa., to Dubois, 228 miles, which connects the lines of the Buffalo, Rochester & Pittsburgh with those of the Delaware & Hudson through the Wilkes-Barre Connecting, which is owned jointly by the Pennsylvania and the D. & H. Use of the line is contingent upon the consummation of the lease of the B. R. & P., by the D. & H., for which application has been sought from the commission. The fact that there was no direct connection between the B. R. & P., and the D. & H., was one of the reasons given in the proposed report of the commission's examiner recommending denial of the application. The contract had been filed with the commission with additional data bearing on the application but Commissioner Meyer, in a letter dated February 21, advised counsel that if the D. & H. desired to operate over the Pennsylvania line it would be necessary for it to secure a certificate of public convenience and necessity under paragraph 18 of section 1 of the interstate commerce act in a separate proceeding.

The commission on February 28 made

public an order dated February 23, before the application was actually filed, re-opening and assigning for further hearing the application to acquire control of the B. R. & P., by lease. Commissioner Meyer on February 24 addressed a telegram to W. T. Noonan, president of the B. R. & P., saying that the proposal to operate by trackage rights over the Pennsylvania line "has an important bearing on pending application to lease B. R. & P., and two applications should be considered together in order to reach an intelligent conclusion as to the public interest." He also said it was understood that the option to lease the B. R. & P. expired on February 28 and asked if the time could not be extended for, say, 90 days.

B. R. & P. Refuses to Extend Option.—Directors of the Buffalo, Rochester & Pittsburgh on March 2 unanimously refused to extend an option given to the Delaware & Hudson covering a lease of the road for 999 years. A statement given out by William T. Noonan, president, said:

"The board of directors of the Buffalo, Rochester & Pittsburgh at its meeting today unanimously decided to exercise its option to terminate any commitment of the Buffalo, Rochester & Pittsburgh to lease its properties to the Delaware & Hudson.

"The uncertainty during the last 18 months as to whether the lease would become effective has made it difficult to make necessary plans for the conduct and development of the property, and it was the opinion of the board, after careful consideration, that this period of uncertainty should not be further prolonged."

ERIE.—Stock Authorized.—The Interstate Commerce Commission has authorized this company to issue \$39,254,200 common stock for purposes of exchange

for \$19,627,100 4 per cent convertible general mortgage bonds, series D. These bonds have the privilege of conversion into common stock at the rate of \$100 par value of the bonds for \$200 of stock.

GEORGIA, SOUTHERN & FLORIDA.—1926 Earnings.—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$653,317, equivalent, after allowance for 5 per cent dividends on the preferred stock, to \$28.24 a share on the common. Net income in 1925 was \$1,003,780 or \$45.76 a share.

GULF, MOBILE & NORTHERN.—Control of J. & E. Approved.—Bonds Authorized.—The Interstate Commerce Commission has authorized this company to acquire control of the Jackson & Eastern. It has also authorized the Gulf, Mobile & Northern to issue \$3,000,000 of first mortgage 5 per cent bonds, series C, \$2,500,000 in exchange for a like amount of series B first mortgage 5½ per cent bonds held by applicant and \$500,000 in respect of capital expenditures; and to sell the series C bonds to Kuhn, Loeb & Co. at not less than 97.25 per cent of par and accrued interest.

HOCKING VALLEY.—Notes Authorized.—The Interstate Commerce Commission has authorized this company to issue \$5,000,000 4½ per cent secured notes and to pledge as collateral security therefor \$6,250,000 general mortgage bonds, series A. The notes are for the purpose of providing in part for the maturity on March 1, 1927, of \$6,000,000 notes issued last September. The road expects to sell the notes at 99.75.

LONG ISLAND.—Financial Requirements.—A. J. County, vice-president of the Pennsylvania and of the Long Island, testifying before the New York Public Service Commission and the Transit Commission on

February 24, in connection with the Long Island's application for higher commutation rates, stated that the company will require a total of approximately \$81,000,000 in the next five years for capital improvements and to fund maturing and floating debts. This includes additions and improvements, \$57,220,000; to meet maturing obligations \$10,608,917; to finance floating debt, \$12,904,123. Mr. County added that the company's return on its book cost of road and equipment for the past five years had been only 4.56 per cent, that it has been unable to pay any dividends for the past 30 years and that all its net income had been spent for improvements and to help pay its debts. He added that it proposes to finance the improvement expenditures and debt maturities in the next five years by issuing the following:

Bonds	\$30,220,000
Equipment trust certificates	10,000,000
New 7 per cent preferred stock	27,608,900
New 6 per cent preferred stock	8,954,100
Common Stock	3,950,000
	<u>\$80,733,000</u>

This, he added, would improve the company's capital structure by reducing the proportion of debt from 68 to 55 per cent and by increasing the proportion of stock from 32 to 45 per cent. Mr. County also stated that if the public and the regulatory authorities will assist the Long Island to prosper and to carry out the improvement program by granting sufficient increases in rates the Pennsylvania, whose financial aid in the past made possible the development of the Long Island, will continue to cooperate fully. The Pennsylvania will accept common stock of the Long Island at par for \$3,950,000 of unpaid interest due for a great many years and a new 6 per cent preferred stock of the Long Island

(Continued on page 688)

Annual Reports

Seventy-third Report of the Lehigh Valley Railroad Company

Philadelphia, Pa., February 23, 1927.

To the Stockholders of the Lehigh Valley Railroad Company:

The Board of Directors submits herewith its report for the year ended December 31, 1926.

Income	
Total Operating Revenues	\$80,453,149.97
Total Operating Expenses	60,958,635.52
Net Operating Revenue	\$19,494,514.45
Railway Tax Accruals	\$4,193,976.29
Uncollectible Railway Revenues	11,800.48
Equipment Rents—Net	1,588,810.96
Joint Facility Rents—Net	102,678.01
	<u>5,691,909.72</u>
Net Railway Operating Income	\$13,802,604.73
Other Income	3,164,021.36
Total Income	\$16,966,626.09
Deductions from Income	6,945,513.10
Net Income	\$10,021,112.99
Profit and Loss	
Balance December 31, 1925	\$59,260,895.23
Transferred from Income	10,021,112.99
Miscellaneous Items—Net	126,535.09
	<u>\$69,155,473.13</u>
Dividends	6,060,800.00
Balance December 31, 1926	\$63,094,673.13

Financial

During the year the final installment of \$500,000 Collateral Trust 4 per cent Bonds matured and was paid. As a result securities amounting to \$4,410,150, which had been under pledge as collateral, were released.

At the close of the year your company held in its treasury unpledged securities amounting to \$38,287,101.44, as shown on page 10, and, in addition, the following securities of its own issue:

General Consolidated Mortgage Bonds	\$38,071,000
Consolidated Real Estate Co. Bonds	2,600,000

Total

Your company has practically no maturities of outstanding obligations to meet for the next twelve years, when an issue of \$8,500,000 becomes due, the refunding of which is provided for in the General Consolidated Mortgage.

Since September 30, 1903, the date of the General Consolidated Mortgage, expenditures of approximately \$69,000,000 have been made for additions and betterments to the property of your company and for other capital purposes against which no new or additional securities have been issued.

The bonds of the Lehigh Valley Railroad Company and its subsidiaries in the hands of the public, as of December 31, 1926, amounted to \$125,989,000, a reduction of \$477,000, compared with a year ago. The average interest rate is 4.62 per cent.

Your company has no equipment trust obligations.

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Road and Equipment

Expenditures for additions and betterments to road and equipment during 1926, including expenditures on properties of subsidiary companies, amounted to \$8,609,650.74.

Growth of business in the Borough of the Bronx, New York City, has made additional facilities necessary that your company might handle its expanding traffic efficiently. Improvements are now under way at the freight terminal at 149th Street and Harlem River, which will increase its capacity from twenty-seven cars to 171 cars.

Two additional inland freight stations for receiving and delivering freight in New York City were opened. This brings the number of these stations to four, which are in addition to the freight terminals of your company located on the Hudson, East and Harlem Rivers.

Other additions to the freight handling facilities of your company were made at Pier 8, Hudson River, New York; Claremont Terminal, Jersey City; Newark, Perth Amboy, Allentown, Wilkes-Barre, Pittston and Sayre. Construction of a new brick and concrete freight house and office building at Suspension Bridge was begun.

The new passenger station at Easton was practically completed and since the first of the year has been opened for service.

The Rochester passenger station was enlarged to provide office room for the local freight and passenger traffic representatives.

A third track, 1.38 miles long, was built between Bloomsbury and West Portal. Yards at Bound Brook, Easton and Delano were enlarged by the installation of additional tracks.

Construction of a new double-track tunnel through Musconetcong Mountain, immediately south of the present tunnel, was started. The new tunnel will be 4,850 feet long and will provide ample clearance for the largest locomotives and cars.

The new four-track reinforced concrete viaduct at Easton was placed in service and at other points a number of bridges were replaced with heavier ones, opening up additional branch line territory to the larger locomotives.

As a result of continued study of the advantages to be gained through the substitution of motor equipment for steam trains on branch lines and where passenger traffic demands are light, your company added four gas-electric motor cars and five trailers to its equipment. Six additional motor cars and eight trailers have been ordered.

The 500 automobile cars, 500 steel coal cars and 100 mill type cars ordered in 1925 were received and put in service and orders were placed during the year for 500 box cars, 500 steel coal cars and 200 automobile cars.

An oil-electric locomotive for switching service in New York, purchased in 1925, was placed in operation in the Twenty-seventh Street yard, Manhattan, and another unit of the same type is on order for use at the 149th Street Terminal.

The work equipment of your company was increased by the addition of two locomotive cranes, fifteen extension side air dump cars, twenty roadway motor cars and four trailers. Thirty-five additional dump cars have been received since the first of the year.

The New York Harbor equipment of your railroad was increased by the addition of ten gas-hoist derrick lighters used for the delivery of structural steel and other heavy freight.

The new equipment placed in service during 1926 cost a total of \$3,433,282.48, and was paid for entirely from current income.

Increased demand for telephone facilities in the conduct of your company's business made necessary an additional trunk line between New York and Buffalo. This will be placed in service during the current year.

To insure more efficient handling of company material and supplies, the system activities of the stores department were concentrated at Sayre and the two-story brick building used for this purpose was enlarged and platforms and other facilities increased.

A two-story office building was erected at the engine terminal at Lehighton.

Installation of a system of automatic train control upon the passenger division between Newark and Easton, as ordered by the Interstate Commerce Commission, to which reference was made in the last report, was completed, 150 locomotives being now equipped with the necessary devices. This installation has been inspected and approved by representatives of the Commission. The Commission's orders, which call for train control in addition to the protection afforded by automatic block signals, require that two passenger divisions be equipped and a contract has accordingly been made for putting in the device between Easton and Sayre, including the equipment of 175 engines.

General Remarks

Revenues from the operations of your railroad in 1926 were the greatest in its history, and net income from railway operations also was larger than in any previous year. As a result, it was possible to declare an extra dividend of 3 per cent or \$1.50 a share in addition to the regular annual dividend of 7 per cent.

The strike of anthracite miners which prevailed at the close of 1925, continued in January and for a part of February, materially reducing earnings from the transportation of coal. Resumption of mining, together with prosperous conditions prevailing throughout the country, enabled your company to offset these earlier losses.

Increasing interest was manifested in the properties your company is holding for industrial development, particularly at Tift Farm, Buffalo, directly on Lake Erie; Fitzpatrick Farm, adjacent to Newark, and at Claremont Terminal, Jersey City.

New industries located along the Lehigh Valley during the year totaled 116, ninety-one of them with direct track connections. To serve these and other manufacturing concerns which enlarged their facilities or made additions to their plants, 5.92 miles of new track were laid and 2.32 miles of new yard tracks and sidings were also constructed, a total of 8.24 miles.

One hundred and seventy track miles of new 136 lb. rail were laid during the year and at the end of the year 82.8 per cent of your company's main line between Jersey City and Buffalo was equipped with this rail, the heaviest used by any railroad.

Approximately 290,000 creosoted cross ties were placed in the track during the year, 11,000 of them being used in new construction and the balance in replacing old non-creosoted ties. At the end of the year, 75 per cent of all the ties in main, branch, and side tracks were creosoted.

Taxes of your company in 1926 amounted to \$4,193,976.29, an increase over the preceding year of \$589,794.54.

Thanks are due the officers and employees of your company for their faithful work during the year.

E. E. LOOMIS.
President.

General Remarks to Owners of Railroad Securities

For another year the railroads have given the United States what is, undoubtedly, the best transportation service ever offered. Despite the enormous traffic they were called upon to handle, with loadings averaging in excess of a million cars a week, there was no general car shortage and no congestion.

The financial showing made by the railroads as a whole likewise was better than in recent years. However, they did not earn the 5¼ per cent on the value of their properties used for transportation purposes, which rate the Interstate Commerce Commission has declared to be fair.

Whether the present position of the railroads can be continued in 1927 is open to question. Business conditions at the beginning of the year seem satisfactory and any serious reduction in traffic is not to be expected. Special factors affecting the railroads particularly, however, serve materially to increase their cost of doing business. There is, for instance, the problem of meeting the wage increases to employees made either voluntarily, through mediation, or as a result of an award of a Board of Arbitration. The 7½ per cent advance awarded to conductors and trainmen alone is expected to increase the annual payroll of the Eastern roads over \$15,000,000 which means, assuming a continuance of the present basis of operating expenses consuming 75 per cent of revenues, that they must have additional gross revenues of

\$60,000,000 if their financial showing is to be as good in 1927 as it was in 1926.

Another complication is the steady increase of state and local taxation which, while falling upon all, is a particular burden to the railroads. This is especially true where carriers are confronted with the fact that every improvement they make for the benefit or convenience of the public immediately becomes the cause for increased taxation. Many of these improvements, too, are to be classed as non-revenue producing, that is, while they entail a heavy expenditure to the carriers they do not serve to increase their income or reduce their expenses.

Railroads pay taxes, for instance, which are used in many cases for the construction of improved highways. As the use of these highways increases, there are demands for the separation of their grades from those of railways which may intersect them. A large part of the cost of crossing elimination is imposed upon the railroad company and the resulting new bridge frequently becomes a subject for new taxation.

The nation-wide drive for economy in the expenditures of state and local governments is one warranting the interest and co-operation of all good citizens. This does not indicate any disposition to stand still or retard community development, but means that officials charged with the duty of expending public funds

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are put upon notice that such expenditures must be fully justified and that no suspicion of waste or extravagance will be tolerated.

The legislative situation, from a national point of view, is an encouraging one. Congress has concerned itself with other matters and the transportation industry has benefited. There is still a disposition on the part of some politicians to seek to make questions of freight and passenger rates subjects for legislation rather than judicial determination at the hands of the well-quali-

fied Interstate Commerce Commission, but, fortunately, their efforts have accomplished little. Unmistakable indications from the general public that it was satisfied with existing railroad conditions and did not look with favor upon political interference in the situation has had full effect. That the public will continue this attitude promises much for the railroads and for the prosperity of the country in 1927.

E. E. LOOMIS,
President.

Synopsis of Annual Report, The Baltimore & Ohio Railroad Company, Calendar Year, 1926

OFFICE OF THE PRESIDENT

BALTIMORE, MD., February 24, 1927.

To the Stockholders of
The Baltimore & Ohio Railroad Company:

In order that you may be informed promptly of the results obtained from the operation of your property for the year ended December 31, 1926, the President and Board of Directors are submitting herewith an Income Statement for the year, compared with 1925, also a condensed Balance Sheet as of December 31, 1926, and certain other pertinent information which it is believed will be of interest to you.

The customary Annual Report of the Company will be prepared and forwarded later to such Stockholders as may indicate to the Secretary of the Company a desire to receive a copy.

The continued general business activity of the country is reflected in the increase in freight traffic, and particularly in the enlarged production of bituminous coal in the territory directly served by your Company. The coal traffic was also stimulated by the increased demands for export due to the suspension of mining in England.

The Net Income for the year available for dividends and other corporate purposes, after the payment of interest, rentals, taxes, and other fixed charges was \$28,494,294 an increase of \$7,700,786 over 1925. This is the largest Net Income earned in any year in the history of your Company, and reflects in part the improvement in operations resulting from the efficient cooperation of the officers and employees, and from the large expenditures for better facilities and more modern equipment that have been made during the last fifteen years.

After paying 4 per cent. dividend upon the preferred stock there remained \$26,139,766 equal to \$17.20 per share on the common capital stock. The President and Board of Directors of the Company at their meeting on December 15, 1926, declared the established quarterly dividend of $1\frac{1}{2}$ per cent. on the common capital stock of the Company, and in addition declared a special dividend of $\frac{1}{2}$ of 1 per cent., both payable March 1, 1927, to stockholders of record at the close of business on January 15, 1927, in order that the aggregate dividends declared on the common stock for the entire year 1926 should be full 6 per cent.

The total accumulated surplus of the Company at December 31, 1926, was \$81,482,922.

Forty-six locomotives which had become obsolete in type were retired from service during the year, and twenty new heavy passenger locomotives were ordered for delivery early in 1927.

Eighty new all-steel passenger cars and 8,296 new freight cars were purchased during the year, and additional orders have been placed for new equipment to be delivered during 1927 as follows: 100 pieces of all steel passenger train equipment, including coaches, diners, baggage and combination cars; 1,500 all steel box cars and 3,000 all steel hopper cars.

Seven passenger cars, 3,300 freight cars and 813 pieces of work equipment, no longer suitable for modern service and efficient operation, were retired during the year.

The contract for the use of the Pennsylvania Passenger Terminal at New York expired on September 1, 1926, and simultaneously therewith the Baltimore & Ohio resumed the operation of its passenger trains north of Philadelphia via the Reading Railroad and Central Railroad of New Jersey to Jersey City. From Jersey City passengers are conveyed from train-side by motor coach service, using specially built coaches, to conveniently located Baltimore & Ohio Passenger Stations in New York City and Brooklyn. A station has been established at 42nd Street and Park Avenue, directly opposite Grand Central Terminal. A station has also been opened in the Waldorf-Astoria Hotel at Fifth Avenue and 33rd-34th Streets. In Brooklyn, a station has been opened at 191 Joralemon Street. Coaches operating between these several points and Jersey City

make a number of intermediate stops along the respective routes to receive and discharge passengers.

On the same date, September 1, 1926, a similar motor coach service was established between Newark and Elizabeth, New Jersey, for the accommodation of Newark passengers, the coaches operating between the Broad Street Terminal of the Central Railroad of New Jersey at Newark, and train-side at Elizabeth, where connection is made with Baltimore & Ohio trains.

The inauguration of this motor coach terminal service in the Metropolitan area at New York has seemingly met with the approval of the traveling public, and an enlarged patronage of your Company's lines is anticipated as the comfort and convenience of this service become more generally known.

Through the improved passenger service, represented by the "Capitol Limited," "National Limited," and "Detroit-Washington Limited," your Company serves the important cities of New York, Philadelphia, Baltimore, Washington, Pittsburgh, Cleveland, Toledo, Detroit, Chicago, Cincinnati and St. Louis.

That these specially equipped trains continue to meet with the approval of the traveling public is shown by an appreciable increase in long distance travel, which has served to offset in large part the continued loss of short-haul business.

There was an increase in the average distance passengers traveled in 1926, compared with 1925, of 10.46 per cent., so that notwithstanding a decrease in 1926 of 8.33 per cent. in the total number of passengers carried, the passenger miles resulting from such travel actually increased 1.25 per cent.

The tons of revenue freight moved during the year increased 6.87 per cent. compared with 1925, and the revenue ton miles increased 7.60 per cent. The total freight revenue increased 7.45 per cent.

The average revenue freight trainload was 862 tons, an increase of 13 tons over 1925.

From each dollar of earnings received during the year, the Company expended for maintenance 33.67 cents, as compared with 34.37 cents in 1925. Transportation expenses, with consumed 35.62 cents of each dollar earned in 1925, were reduced to 34.68 cents in 1926. As a result of these reductions the total operating expenses were but 73.83 cents out of each dollar of earnings in 1926, as compared with 75.40 cents in 1925.

The property was in good physical condition at the end of the year.

Under the authority of the Interstate Commerce Commission to acquire the entire capital stock of the Cincinnati, Indianapolis & Western Railroad Company. The Baltimore & Ohio Railroad Company has purchased more than 96 per cent. of the preferred and common shares of this company, and application is pending for authority to operate the property, comprising some 300 miles of railroad, extending from Hamilton, Ohio, to Springfield, Ill., as part of the Baltimore & Ohio System. This action is in conformity with the general plan of consolidation as tentatively proposed by the Interstate Commerce Commission, and was taken in furtherance of the purpose to strengthen the western portion of the Baltimore & Ohio System and established direct contact with the important manufacturing centers of Indianapolis, Decatur, Springfield, etc.

The Management again desires to commend the Baltimore & Ohio service to the shareholders, and through them to the general public, and to ask their further cooperation in its efforts to secure a greater proportion of the business moving to and from the territory which it serves. The assistance given by the shareholders in the past has been most helpful and is appreciated, and it is hoped this cooperation will be continued and extended where opportunity may offer.

The general business situation throughout the territory served by the Baltimore & Ohio appears to be sound, and the outlook continues encouraging.

DANIEL WILLARD, President.

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THE BALTIMORE & OHIO RAILROAD COMPANY

Income Account

	1926	1925	Increase or Decrease	
			Amount	%
Revenue from freight transportation.....	\$207,985,595	\$193,558,361	\$14,427,234	7.45
Revenue from passenger transportation.....	27,808,659	27,904,665	*96,006	*0.34
Revenue from mail, express and other transportation service.....	16,567,576	16,083,914	483,662	3.01
Total Railway Operating Revenues.....	\$252,361,830	\$237,546,940	\$14,814,890	6.24
Maintenance of Way and Structures.....	\$31,525,661	\$28,440,416	\$3,085,245	10.85
Maintenance of Equipment.....	53,440,119	53,206,661	233,458	0.44
Traffic	5,048,399	4,551,082	497,317	10.93
Transportation	87,519,068	84,621,877	2,897,191	3.42
General	6,570,014	6,210,388	359,626	5.79
Miscellaneous	2,203,012	2,069,173	133,839	6.47
Total Railway Operating Expenses.....	\$186,306,273	\$179,099,597	\$7,206,676	4.01
Transportation Ratio.....	34.68%	35.62%	.....	.....
Total Operating Ratio.....	73.83%	75.40%	.....	.....
Net Revenue from Railway Operations.....	\$66,055,557	\$58,447,343	\$7,608,214	13.02
Taxes	\$11,843,416	\$10,064,868	\$1,778,548	17.67
Equipment and Joint Facility Rents.....	3,406,804	5,348,388	*1,941,584	*36.30
Total Charges to Net Revenues.....	\$15,250,220	\$15,413,256	*\$163,036	*1.06
Net Railway Operating Income, as defined in the Transportation Act of 1920.....	\$50,805,337	\$43,034,087	\$7,771,250	18.06
Other Income—Rents, Dividends on Stock and Interest on Bonds owned.....	6,890,426	6,237,801	652,625	10.46
Total Income from all sources.....	\$57,695,763	\$49,271,888	\$8,423,875	17.10
Deductions for Interest and Rentals.....	\$28,674,543	\$27,518,835	\$1,155,708	4.20
All Other Charges Against Income.....	526,926	959,543	*432,619	*45.09
Total Deductions from Income.....	\$29,201,369	\$28,478,380	\$723,089	2.54
Balance of Income available for dividends and other corporate purposes.....	\$28,494,294	\$20,793,508	\$7,700,786	37.03
Dividends declared:				
Preferred Stock—4%	\$2,354,528	\$2,354,527	\$1	.....
Common Stock—6% (1925—5%).....	9,116,725	7,597,270	1,519,455	20.00
Total Dividends	\$11,471,253	\$9,951,797	\$1,519,456	15.27
Leaving a Surplus, after all charges and dividends declared, of.....	\$17,023,041	\$10,841,711	\$6,181,330	57.01

Statistics

Revenue Passengers Carried.....	13,517,179	14,745,684	*1,228,505	*8.33
Revenue Passenger Miles.....	889,389,243	878,441,702	10,947,541	1.25
Average Miles per Passenger.....	65.80	59.57	6.23	10.46
Average Rate per Passenger Mile (cents).....	3.127	3.177	*0.050	*1.57
Tons of Revenue Freight Handled.....	111,822,033	104,637,773	7,184,260	6.87
Revenue Ton Miles.....	20,937,488,311	19,459,442,692	1,478,045,619	7.60
Average Miles per Ton.....	187.24	185.97	1.27	0.68
Average Rate per Ton Mile (mills).....	9.93	9.95	*0.02	*0.20
Revenue Tons per Train Mile.....	861.55	848.68	12.87	1.52
Freight Train Miles per Train Hour.....	10.17	10.30	*0.13	*1.26

*Decrease.

THE BALTIMORE & OHIO RAILROAD COMPANY

Condensed Balance Sheet—December 31, 1926

ASSETS

Investment in property used in Transportation Service.....		\$822,465,180
Road	\$587,469,997	
Equipment	234,995,183	
Investment in Separately Operated Companies, including Miscellaneous Physical Property		58,635,210
Investment in Sinking Funds and Deposits account Property Sold.....		110,010
Investment in Other Companies.....		31,279,783
Total Investments		\$912,490,183
Current Assets		67,688,173
Cash	\$24,533,719	
Other	43,154,454	
Deferred Assets		3,489,283
Total Assets		\$983,667,639

LIABILITIES

Capital Stock Outstanding.....		\$210,808,535
Preferred	\$58,863,181	
Common	151,945,354	
Long Term Debt.....		581,973,441
Equipment Obligations	\$66,896,268	
Mortgages and Capitalized Leaseholds.....	515,077,173	
Current Liabilities—Traffic and Car Service Balances, Accounts and Wages Payable, Interest and Dividends		32,498,670
Matured and Unpaid, Unmatured Dividends Declared, and Other Current Liabilities		7,327,044
Liability for Provident Funds and Other Deferred Items.....		55,623,428
Accrued Depreciation—Equipment		13,953,599
Reserve for Taxes, Insurance and Operation.....		81,482,922
Surplus		\$983,667,639

Road Operated and Equipment

Total Miles of Road Operated.....		5,288
Total Miles of All Track Operated.....		10,493
Locomotives	Steam	2,454
	Electric	11
	Other	2
Passenger Cars		1,579
Freight Cars		102,144
Tugs, Barges and Other Boats.....		179
Work Equipment		2,521

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Clearfield & Mahoning Railway

Assets—Improvements—Increase	\$30,680.74
Liabilities—Deferred Liabilities—Retirements—Inc.	10,198.09
Net debit	20,482.65
Total net credit for leased lines	\$24,734.82

Passenger Revenues

The gross passenger revenue amounted to \$1,250,011.39, a decrease of 13.32 per cent, or \$192,146.66 against the same period in 1925. The loss of this traffic is due entirely to the public using motor buses and privately owned automobiles in preference to the railroads.

The average rate received per passenger per mile decreased .031 cent, being 3.042 cents as compared with 3.073 cents the preceding year.

The average distance each passenger was carried increased 2.5 miles, being 36.7 miles against 34.2 miles.

Passengers carried in 1926	1,119,863
Passengers carried in 1925	1,371,900

A decrease of 18.37 per cent, or

Passengers carried one mile in 1926	41,089,394
Passengers carried one mile in 1925	46,935,307

A decrease of 12.46 per cent, or

Freight Revenues

The gross freight revenue amounted to \$16,515,591.47, an increase of 15.37 per cent, or \$2,200,705.56 compared with 1925.

The average rate received per ton mile decreased .017 cent, being .886 cent compared with .903 cent for the same period in 1925.

The average distance each ton was hauled decreased 1.79 miles, being 152.03 miles, against 153.82 miles last year.

The bituminous coal tonnage increased 1,900,999 tons, or 38.98 per cent, as compared with 1925.

The small decrease in other freight was more than offset by the increases in coke, iron ore and iron products.

The revenue tonnage moved was as follows:

	1926	1925	Increase	Decrease
Bituminous coal	6,778,436	4,877,437	1,900,999	
Coke	242,757	109,313	133,444	
Iron ore	109,250	108,657	593	
Pig and bloom iron	221,175	142,382	78,793	
Other freight	4,911,993	5,066,412		154,419
Total	12,263,611	10,304,201		

An increase of 19.02 per cent, or

Tons moved one mile in 1926	1,864,443,909
Tons moved one mile in 1925	1,585,036,538

An increase of 17.63 per cent, or

The average number of revenue tons carried one mile per revenue freight train mile, excluding the mileage of helping engines, increased 67.59 tons, being 823.88 tons against 756.29 tons a year ago.

The average number of revenue tons carried one mile per revenue freight engine mile, including the mileage of helping engines, increased 32.64 tons, being 555.49 tons against 522.85 tons a year ago.

The averages for the past ten years are as follows:

	Train load	Engine load
1917	836	545
1918	943	602
1919	884	586
1920	943	602
1921	754	520
1922	790	534
1923	850	554
1924	736	515
1925	756	523
1926	824	555
Decrease under 1917	12 (Increase)	10
Per cent	1.44 (Increase)	1.83

The non-revenue freight traffic, not included in any other figures of this report, is as follows:

	1926	1925
Number of tons	951,431	845,781
Number of tons carried one mile	86,594,101	78,781,315

Operating Expenses

Operating expenses increased \$1,160,862.92, or 8.48 per cent, as follows:

	Increase	Decrease	Per cent.
Maintenance of way	\$157,481.44		7.50
Maintenance of equipment	726,580.46		16.05
Traffic	17,009.89		5.22
Transportation	216,074.65		3.47
Miscellaneous operations		\$337.82	1.13
General	46,024.87		9.32
Transportation for investment—Cr.		1,970.58	12.13
Total	\$1,160,862.91		8.48

The increase in Maintenance of Way expenses was due to a larger maintenance program, principally track laying, surfacing and ditching.

Extraordinary expenses were incurred in Maintenance of Equipment, caused by an extensive program of heavy repairs to freight cars and retirement of unserviceable rolling stock.

The increase in wages affecting conductors, trainmen and yardmen awarded by the Board of Arbitration, effective December 1, 1926, adds approximately \$9,200 per month to expenses.

Advances were also granted to shop crafts and shop laborers, effective December 16, 1926, amounting to \$11,000 per month.

The remaining increases can be attributed to the greater volume of traffic.

The operating ratio was again decreased, and is lower than for any year since 1917.

The percentage of each group of operating expenses to the operating revenue for the past seven years, is as follows:

	1926	1925	1924	1923	1922	1921	1920
Maintenance of way	12.25	12.68	10.74	17.77	14.28	13.75	16.58
Maintenance of equipment	28.52	27.34	29.36	32.14	38.85	34.18	31.05
Traffic	1.86	1.97	1.93	1.40	1.42	1.50	1.03
Transportation	34.99	37.62	39.12	38.29	40.07	43.33	45.98
Miscellaneous operations .....	.16	.18	.18	.15	.17	.21	.17
General	2.93	2.98	3.07	2.33	2.83	3.38	2.46
Transp. for Inv.—Cr. ....	.10	.10	.08	.48	.09	.01	.06
Total	80.61	82.67	84.32	91.60	97.53	96.34	97.21

The average cost per ton mile is .682 cent, a decrease of .036 cent from last year.

General Remarks

The lease of your property to the Delaware & Hudson Company, referred to in last year's report, is now before the Interstate Commerce Commission for approval, the final arguments having been made on December 21, 1926.

In order to put into written form the arrangements in existence since January 1, 1900, a lease of the Allegheny Terminal Company to the Allegheny & Western Railway Company, effective January 1, 1926, and assignment by the latter to your Company, was approved by the stockholders of the respective companies January 11, 1926, and authorized by the Interstate Commerce Commission December 28, 1926, and by the Public Service Commission of Pennsylvania on January 3, 1927. The terms are substantially identical with the verbal arrangement under which the property is operated by your Company, and is fully covered by the fixed rental paid to the Allegheny & Western Railway Company.

As stated in last year's report, the Interstate Commerce Commission issued on February 10, 1926, a tentative valuation of the property of your Company and its leased lines. A protest thereto was filed within the statutory limit, on March 15, 1926. A hearing was set for June 28th at which a formal conference was ordered, resulting in the satisfactory adjustment of many differences. Final testimony on the remaining matters in dispute will be taken at a hearing before an Examiner of the Commission on February 8, 1927.

The cost of valuation work on your Company's properties to date has reached \$355,606.40, of which \$69,005.20 was assumed by the U. S. Railroad Administration.

The Ontario Car Ferry Company, Limited, paid a dividend of 5% for the year ending December 31, 1925. The sum of \$12,500 received on the \$250,000 of this Company's stock was credited to non-operating income account.

The dividends paid by the following Water Companies:

Ketner Water Co.	\$92,000 stock @ 8%	\$7,360.00
Klye Water Co.	85,000 stock @ 13%	11,050.00
Cloe Water Co.	55,000 stock @ 9%	4,950.00
Total		\$23,360.00

were also credited to the same account.

The agreement with the American Railway Express Company, expiring February 28, 1927, was extended to February 28, 1929.

Mr. Robert M. Youngs was on February 1, 1927, elected a Director to fill the vacancy in the Board caused by the death of Mr. Oscar Grisch.

The acknowledgments of the Board are renewed to its officers and loyal employees for their faithful and efficient service.

By order of the Board,

WILLIAM T. NOONAN, President.

Rochester, N. Y., February 15, 1927.

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Railway Finance

(Continued from page 682)

at par for the remaining \$8,954,100 of floating debt instead of requiring payment in cash or bonds.

1926 Earnings.—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$3,144,170 equivalent to \$4.61 a share on the outstanding capital stock. This compares with \$3,840,126 or \$5.62 a share in 1925.

MANISTEE & REPTON.—*Abandonment.*—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon 4 miles of line from Dottelle, Ala., to Manistee Junction. The company exchanges traffic with the Louisville & Nashville at the latter point but will build 3 miles of new line giving it a more economical interchange operation at Monroeton.

MOBILE & OHIO.—1926 *Earnings.*—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$1,886,339, equivalent to \$31.35 a share on the outstanding shares of stock. This compares with \$2,187,623 or \$36.35 a share in 1925.

NEW ORLEANS & NORTHEASTERN.—1926 *Earnings.*—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$1,189,634 equivalent to \$19.82 a share on the outstanding capital stock. Net income in 1925 was \$1,206,230 or \$20.10 a share.

NORFOLK SOUTHERN.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has approved the issuance of \$300,000 4½ per cent equipment trust certificates, series C, and their sale to the Mercantile Trust & Deposit Company and Strother, Brogden & Co., both of Baltimore, at 97.18. These companies made the best bid of seven offers. The equipment includes 3 locomotives and 150 freight cars having a total approximate cost of \$410,250.

PENNSYLVANIA.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a portion of its Fairbrook branch, from Stover, Pa., to Fairbrook, 18.26 miles.

PENNSYLVANIA.—1926 *Earnings.*—A preliminary statement of 1926 earnings shows net income after interest and other fixed charges of \$67,774,263 equivalent to \$6.78 a share on the capital stock. Net income in 1925 was \$62,375,182 or \$6.24 a share.

PITTSBURGH & LAKE ERIE.—*Acquisitions of Stock.*—It is reported that banking interests representing the Pennsylvania and the Delaware & Hudson have been buying stock of the Pittsburgh & Lake Erie, which is controlled by the New York Central through ownership of a majority of the capital stock.

ST. LOUIS-SAN FRANCISCO.—*Dividend Increased.*—Directors, meeting in New York on March 2, declared a quarterly dividend of 1¼ per cent on the common stock, and, in addition, an extra distribution, which is hereafter to be paid quar-

terly, of 1 per cent, both payable April 1 to stockholders of record March 15, thereby placing this issue on an 8 per cent annual dividend basis. An initial quarterly dividend at the annual rate of 5 per cent was paid on the common stock in January, 1925, and in October, 1925, the rate was increased to 7 per cent. An official statement relative to the increased dividend said:

"This action was taken in view of the increased income to be derived by the company from its ownership of 183,333 shares of common stock of the Chicago, Rock Island & Pacific, which was recently placed on a dividend basis at the rate of 5 per cent per annum. It was the judgment of the board of directors that this income, amounting to \$916,665 per annum, should be shared by the company with its stockholders."

SEABOARD AIR LINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for the sale of \$5,000,000 of first and consolidated mortgage 6 per cent bonds to a syndicate formed by Dillon, Read & Co., and Ladenburg, Thalmann & Co., at not less than 96½ and \$2,000,000 of Seaboard-All Florida first mortgage 6 per cent bonds at not less than 95½. The agreement with the bankers provides that the railway shall be entitled to receive from the syndicate all amounts in excess of 98¼ and interest received by the syndicate from the sale of the \$5,000,000 issue and all in excess of 97¼ and interest received from the sale of the other issue. Sale of these bonds was reported in last week's issue of the *Railway Age*.

SOUTH OMAHA TERMINAL RAILWAY COMPANY.—*Charter Granted.*—This company was granted a state charter, with an authorized capital stock of \$1,650,000, on February 25. Ford E. Hovey, president of the Union Stock Yards Company of Omaha; E. P. Peck, and others are the incorporators. W. H. Schellberg, vice-president and general manager of the Union Stock Yards Company, Omaha, is president. Mr. Hovey is vice-president and M. L. Shawcross is secretary and treasurer.

TEXAS & PACIFIC.—*Bonds Sold.*—Kuhn, Loeb & Co. sold on Wednesday at 99½ and accrued interest \$16,000,000 general and refunding mortgage 5 per cent bonds, series B, maturing April 1, 1977.

These bonds will be issued under the general and refunding mortgage of the company, dated January 1, 1924, and will be secured by direct lien on all the lines of railroad and appurtenances thereof now owned by the company including valuable terminal properties in Fort Worth, Dallas, and El Paso, Tex., Shreveport, La., and elsewhere, and also on equipment, or the interest of the company therein, having a net value as of December 31, 1926, after depreciation, over outstanding equipment trust certificates, of not less than \$12,592,000.

The lines of railroad covered by the general and refunding mortgage comprise about 1,898 miles of first main track and about 782 miles of second main and other track. The general and refunding mortgage is subject to prior obligations in the aggregate principal amount of \$30,229,000,

for the retirement of which, at or before maturity, general and refunding mortgage bonds are reserved. None of the prior obligations may be renewed or extended and no further issues made under the indentures securing them. Upon completion of this financing, the entire bonded debt of the company outstanding will be \$46,229,000, equal to \$24,357 per mile of first main track covered by the mortgage, without making allowance for the other valuable property on which the bonds are a lien.

The proceeds of the present issue of \$16,000,000 principal amount of bonds will be used to retire \$4,400,000 of 6 per cent secured gold notes which will be called for redemption on September 1, 1927, and \$4,440,583 of 6 per cent serial gold notes, and to reimburse the treasury of the company for capital expenditures heretofore made upon the property of the company subject to the mortgage.

Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Abilene & Southern, operating from Abilene, Tex., to Hamlin, 96.79 miles, by purchase of its entire capital stock of \$75,000 and its bonded indebtedness, consisting of \$1,012,066 of first mortgage bonds, for \$1,000,000 in cash.

Average Price of Stocks and Bonds

	Mar. 1	Last week	Last year
Average price of 20 representative railway stocks.	107.61	107.75	89.33
Average price of 20 representative railway bonds.	98.57	98.77	94.70

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates, as follows:

FINAL REPORTS		
Williamsport & North Branch	\$1,001,600	1917
Washington & Vandemere	694,216	1917
Sherwood	241,045	1918

TENTATIVE REPORTS		
Union Terminal (St. Joseph, Mo.)	\$1,044,488	1917
Galveston, Houston & Henderson	3,485,700	1918
Union Railway (Memphis, Tenn.)	1,648,502	1918
Bennettsville & Cheraw	351,570	1918

Dividends Declared

Consolidated Railroads of Cuba.—Preferred, 1½ per cent, quarterly, payable April 1 to holders of record March 10.

Cuba Railroad.—Common, \$1.20, quarterly, payable March 21 to holders of record March 21.

Erie & Pittsburgh.—\$0.87½, quarterly, payable March 10 to holders of record February 28.

Fonda, Johnston & Gloversville.—Preferred, 1½ per cent, quarterly, payable March 15 to holders of record March 10.

Fere Marquette.—Common, \$1.50, quarterly; \$2 (extra); both payable April 1 to holders of record March 14. Preferred and prior preference, \$1.25, quarterly; both payable May 2 to holders of record April 14.

St. Joseph, South Bend & Southern.—Common, ¼ per cent; preferred, 2½ per cent; both payable March 15 to holders of record March 11.

St. Louis-San Francisco.—Common, 1¼ per cent.

St. Louis Southwestern.—Preferred, 1¼ per cent, quarterly, payable March 31 to holders of record March 11.

Wabash.—Class B, preferred, \$5 (initial), annually, payable April 1 to holders of record March 19.

Railway Officers

Financial, Legal and Accounting

George D. Hill, real estate agent for the Seaboard Air Line at Atlanta, Ga., has resigned to become treasurer of the Bayshore Company, operating a toll road at Jacksonville, Fla.

Frederick W. Fleck, who has been appointed general claim agent of the Reading, with headquarters at Philadelphia, Pa., was born on August 10, 1884, and was educated in the public schools and by a private tutor. He entered railroad service in 1898 with the Reading as a night crew caller and messenger. He became a clerk for the Philadelphia & Reading Relief Association in 1900, and,



F. W. Fleck

in 1903, was transferred to the office of the claim agent in the same capacity. Three years later he became chief clerk in this department and held that position until 1919, when he was appointed also claims adjuster. In 1924 he was promoted to assistant to the general claim agent and a year later to assistant general claim agent, which latter position he was holding at the time of his recent promotion.

Operating

Clyde O. Lakin, chief dispatcher on the Chicago & Illinois Midland, with headquarters at Taylorville, Ill., has been promoted to trainmaster, with the same headquarters.

G. H. Kidder, superintendent of the Connecticut river division of the Boston & Maine, has been appointed assistant general secretary of the road's safety department, and **A. W. Perkins** has succeeded him as superintendent.

A. N. Lyon has been appointed assistant to the general superintendent of the New York Central, Ohio Central Lines,

with headquarters at Charleston, W. Va. **I. B. Chadwick** has been appointed superintendent, with the same headquarters. **R. W. Nutting** has been appointed trainmaster, with headquarters at Hobson, Ohio.

The portion of the Missouri division of the Missouri Pacific extending from Poplar Bluff yard, Mo., to Hoxie, Ark., has been transferred to the jurisdiction of the Arkansas division, Hoxie district. The Doniphan district of the Missouri division has also been transferred to the jurisdiction of the Arkansas division.

Kimber R. Vought, who has been promoted to superintendent of the St. Louis division of the Pennsylvania, with headquarters at Terre Haute, Ind., was born on June 1, 1875, at Union Corners, Pa. After attending high school and business college at Shamokin, Pa., Mr. Vought entered railway service in 1889 as a supply clerk on the Philadelphia & Reading (now the Reading) at that point. Three years later he was transferred to the operating department as a freight brakeman and entered the service of the Pennsylvania in the same capacity, with headquarters at Renovo, Pa., on October 7, 1897. He was promoted to passenger conductor on March 16, 1906, becoming assistant trainmaster on the Renovo division on August 8, 1911, and being advanced to trainmaster on the same division on November 22, 1918. On December 1, 1920, Mr. Vought was transferred to the New York division as a freight trainmaster and on April 1, 1926, he was appointed acting assistant superintendent on this division. He was given the title of assistant superintendent on June 2, 1926, a position he held until his further promotion to superintendent on January 16.

Executive

J. P. Lewis has been elected president of the Frankfort & Cincinnati, succeeding **R. S. Scott** and **J. H. Switzer**, receivers. Mr. Scott has been appointed secretary, while Mr. Switzer has been appointed general manager in charge of traffic, operating and maintenance. **C. Bowles**, assistant general manager and auditor for the receivers, has been appointed auditor and treasurer.

Homer E. McGee, who has been elected vice-president and general manager of the Missouri-Kansas-Texas, with headquarters at Dallas, Tex., effective February 1, was born on October 15, 1885, at Alvord, Tex., and entered railway service on March 1, 1905, as a station helper on the Missouri-Kansas-Texas of Texas at Holland, Tex. He was subsequently employed at various points in the South Texas district as a telegrapher, cashier and relief agent and

early in 1908 he became a car distributor in the dispatcher's office at Smithville, Tex. The following year he was promoted to dispatcher, in 1910 he was appointed relief chief dispatcher and in the same year he was advanced to chief dispatcher. From 1911 to 1915 Mr. McGee served as trainmaster at Smithville and he was then promoted to superintendent of the Shreveport district, with headquarters at Greenville, Tex. In 1917 he was given a leave of absence and assigned to Waco, Tex., as the American Railway Association representative for Camp McArthur, handling railroad matters for all lines entering this camp. He returned to the Katy as superintendent at Oklahoma City, Okla., during the latter part of 1917, and one month later he was transferred to Parsons, Kan., in charge of the Parsons district, where he remained until June, 1918, when he was again transferred to the South Texas district. Mr. McGee was promoted to general superintendent of the Texas lines of the Katy on August 1, 1918, and in addition he served as general superintendent of the Houston & Texas Central for eight months during 1918 and 1919. In 1920 he was advanced to general manager of the Texas lines and two years later when the offices of the general managers of the Kansas and Texas lines were consolidated he was given jurisdiction over the entire Katy system. Mr. McGee remained as general manager after the reorganization of the M. K. & T. of Texas and the M. K. & T. into the M-K-T and his headquarters were moved to Denison, a position he held continuously until his election to vice-president and general manager.

Engineering, Maintenance of Way and Signaling

Robert Farnham, who has been appointed chief engineer, Philadelphia improvements, of the Pennsylvania, with headquarters at Philadelphia, was



Robert Farnham

born on December 19, 1877, at Washington, D. C. He attended Lehigh University, being graduated with the class of 1899 with the degree of C. E. In

March, 1903, he entered the service of the Pennsylvania as a transitman in the engineering corps, and in August of the same year, was appointed assistant engineer of construction, and placed in charge of construction work for the Pennsylvania in connection with the building of the Union Station and the elimination of grade crossings at Washington, D. C. In March, 1910, after the completion of the Washington terminal work, he was transferred to the office of the engineer of bridges and buildings in Philadelphia, assistant engineer in charge of the drafting room. In 1913 he was appointed assistant to engineer of bridges and buildings and, in 1916, he was appointed assistant engineer of bridges and buildings, where, under the direction of the engineer of bridges and buildings, he had charge of the design and erection of masonry and steel bridges on the Pennsylvania, east of Pittsburgh and Erie. Since April, 1923, he has been engineer of bridges and buildings. This position he was holding at the time of his recent promotion.

Sidney H. Osborne, who has been promoted to engineer of maintenance of way of the Union Pacific, with headquarters at Omaha, Neb., entered railway service on April 17, 1900, on the Oregon Short Line after graduating from high school and completing several special college engineering courses. For the next 14 years Mr. Osborne served in various capacities in connection with maintenance and construction on the Oregon Short Line, including the positions of instrumentman, timekeeper, clerk, track foreman, bridge foreman,



S. H. Osborne

general foreman and assistant engineer. During this period he also acted as engineer in charge of the construction of five branch lines on the Oregon Short Line. In September, 1913, he was promoted to division engineer on the Idaho division, with jurisdiction over the territory from Granger, Wash., to Huntington, Ore., and in February, 1917, he became assistant engineer on special work for the engineer of maintenance of the Union Pacific. From December of the

same year until October, 1920, he served as division engineer of the Kansas division, with headquarters at Kansas City, Mo., when he was transferred to the Nebraska division, with headquarters at Omaha. In January, 1924, Mr. Osborne was again transferred to the Los Angeles division of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal. He was transferred to the Colorado division of the Union Pacific, with headquarters at Denver, Colo., on March 1, 1925, where he remained until his promotion to engineer of maintenance of way of the Union Pacific.

Mechanical

Samuel Lynn, who has been appointed superintendent rolling stock of the Pittsburgh & Lake Erie, with headquarters at McKees Rocks, Pa., was born on August 2, 1869, at Pittsburgh, Pa., and was educated in the common



S. Lynn

schools. He entered railway service in 1885 as a laborer for the Pittsburgh & Lake Erie and shortly thereafter became a car repairer and, later, a gang foreman. From 1893 to 1908 he was passenger car foreman at the company's Pittsburgh terminal, and in 1908, he was appointed master car builder at McKeesport. He held that position until the time of his recent promotion.

George H. Logan, general foreman at the Chicago shops of the Chicago & North Western, has been appointed superintendent of locomotive shops at the same point, succeeding **J. Murfin**, retired on pension.

W. T. Abington, general foreman on the Missouri Pacific, with headquarters at North Little Rock, Ark., has been appointed master mechanic of the Little Rock division, with headquarters at McGhee, Ark., succeeding **A. R. Sykes**, transferred to Van Buren, Ark.

D. C. Reid, assistant mechanical superintendent of the Boston & Maine, with headquarters at Boston, Mass., has been appointed superintendent of locomotive maintenance, with headquarters in the same city, succeeding **Roy W.**

Band, assigned to other duties. The position of assistant mechanical superintendent has been abolished.

James Paul, who has been appointed superintendent of motive power of the third division of the Atlantic Coast Line, with headquarters at Tampa, Fla., was born in 1869, in Lanarkshire, Scotland. He received a high school education and entered railroad service in 1885 with a predecessor of the Atlantic Coast Line as a car inspector's helper. Three months later he was transferred to the



J. Paul

machine shop as an apprentice and remained there until he had completed his time, when he became an air brake repairman. Later he became round-house foreman and, still later, general foreman. In 1906, he became master mechanic and in November, 1925, he was appointed assistant superintendent of motive power. He held that position until the time of his recent promotion.

Obituary

J. G. Cantrell, general western agent of the Seaboard Air Line, died at Daytona Beach, Fla., on February 19.

William F. Herrin, vice-president and chief counsel of the Southern Pacific, died on February 28 at his home in San Francisco, Cal., at the age of 72.

H. C. Dinkins, general agent of the Missouri Pacific at Mexico City, Mex., from June, 1921, until his retirement on October 1, 1926, because of ill health, died at San Diego, Cal., on February 24.

Frederick Beaumont Sheldon, resident vice-president of the Ohio Central lines of the New York Central, with headquarters at Columbus, Ohio, died on March 1 in that city from heart disease.

Charles Sprague, president of Sprague-Nisley, Beatrice, Neb., the contractor on the construction of a portion of the line of the Ft. Worth & Denver South Plains, between Estelline, Tex., and Plainview, was found dead in his bed at Quitaque, Tex., on February 22.

